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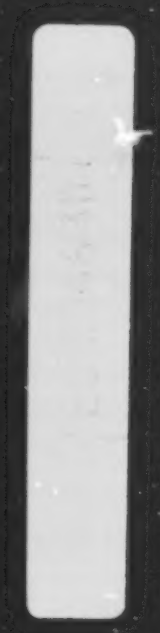
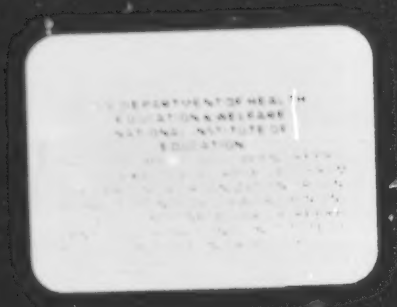
ABSTRACT

This document contains a set of guidelines designed to assist officials and consultants of the state-supported universities, colleges, and community colleges in the appropriate procedures for selecting campus sites, in the preparation of long-range facilities plans for the development of their campuses, and in the program planning of specific facilities. On these pages, the authors have assembled data, criteria and standards that have previously appeared in Colorado Commission on Higher Education publications. To this, some newly generated guideline procedures and forms have been added. The purpose of this document is to provide guidance to institutional planners in carrying out master and program planning activities. Also, because institutional plans must be reviewed and approved by the Commission on Higher Education before they can be effected, the guidelines are intended to serve as a common basis for the communication on these matters between the institutions and the commission. Appendixes contain: planning criteria, definitions and abbreviation, state laws and policies relating to facilities development, and instructions and forms for completing physical plant inventory. (Author)





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PREFACE

This document contains a set of guidelines designed to assist officials and consultants of the state-supported universities, colleges and community colleges in the appropriate procedures for selecting campus sites, in the preparation of long-range facilities plans for the development of their campuses, and in the program planning of specific facilities. On these pages, the authors have assembled data, criteria, standards, etc. which have previously appeared in Colorado Commission on Higher Education publications. To this, some newly generated guideline procedures and forms have been added. Then, an attempt has been made to arrange the material in a logical and understandable manner.

This set of guidelines has been subjected to thoughtful study by representatives of the state's institutions of higher education as well as a group of private consulting firms which have been involved in providing site selection, master planning, and program planning services to these institutions. Through this process, extensive revisions of the guideline material have occurred since the material was originally drafted. Although the material has undergone careful review, it is recognized that it is incomplete in many ways and will need to undergo continuing refinement over years to come. To make the process of revision easier, page and table numbers for each section are independent of those in other sections, thus allowing an individual section to be re-drafted and distributed without re-printing the entire manual.

The Commission is establishing a standing facilities planning committee which committee will be charged with continuing review of these guidelines. Any institutional staff member who has suggestions for revisions in the guidelines should communicate those suggestions to the committee via the CCHE staff member who has responsibility for supporting the committee's work. It is envisioned that this committee will periodically propose to the Commission that the planning guidelines be amended.

The purpose of this document is to provide guidance to institutional planners in carrying out master and program planning activities. Also, because institutional plans must be reviewed and approved by the Commission on Higher Education before they can be effectuated, the guidelines are intended to serve as a common basis for communication on these matters between the institutions and the Commission.

Although the planning called for in this document is quite detailed in nature, it is not intended that review on the part of the Commission or other state agencies will be pitched at that level of detail. The purpose of the prescribed detail is to encourage incisive planning at the institutional level, and not to involve CCHE and other state agencies in institutional management functions.

AN OVERVIEW

In order to provide an effective framework for its system of public higher education, Colorado has established a three-sector educational system made up of the university, general college, and community college sectors. In 1971-72, this system accommodated approximately 110,000 students. To illustrate the impressive growth of public higher education in Colorado, there were only 39,250 students enrolled in the state system in 1961--a figure only slightly more than one-third the present level. Although the past 10-year period is quite short in relation to the total span of years since the doors of the University of Colorado were opened in 1876, during this brief period the State of Colorado has added more students to the enrollments of its state colleges and universities than had enrolled in all the decades up to 1960. The future holds potential for further growth in the state's system of higher education, although future growth will not be of the magnitude experienced over the past few years.

Enrollment growth is only part of the story. The content of educational programs is expanding at a remarkable pace. Those who gaze at the educational crystal ball tell us that the national fund of recorded knowledge is now doubling more than once every 10 years. Thus, by the time the child who is born today graduates from college, the fund of recorded knowledge will have expanded to a size which is four times that of today. It would seem obvious that, if the learning process is to cope with this growing array of knowledge, new teaching techniques and media must emerge.

It is obvious that new educational facilities must be constructed to accommodate the level of students already enrolled and to accommodate some additonal enrollments. Perhaps more importantly, substantial alterations and renovations of existing facilities will need to occur to meet changing program needs of the future. These developments must be planned in a manner which will assure that every tax dollar which it uses is spent wisely.

In order to achieve this goal, the State of Colorado has established a thorough facility planning procedure for its system of higher education. Several planning stages are required prior to appropriation of construction funds for any campus facility.

1. LONG-RANGE FACILITIES MASTER PLAN*

The long-range facilities master plan deals with enrollment and educational program projections for the entire institution. When these elements have been established, the master plan projects the land needs and scope of facilities required to serve the institution from the present until the maximum projected enrollment is reached.

The master plan identifies all capital projects proposed to be carried out over the period of time covered by the plan, relates the projects in an appropriate manner so as to produce a coordinated whole, and presents general estimates of project

*A site selection study for a new campus or for expansion of an existing campus may be accomplished as a part of the master plan development or as a separate study.

costs as of the proposed time for carrying them out. The first five years of master plan development should be done in considerably more detail than subsequent phases since the first phase of planning is critical in the establishment of project need.

2. PROGRAM PLAN

For each specific facility (building or site development project), a written program plan is required. The program plan is based upon the long-range facilities master plan. It sets forth the nature of the project in detail, justifying its construction and describing its size, the nature and relationship of the elements that it contains, its estimated cost, and its proposed time schedule.

This phase of planning should constitute a further refinement of the project as outlined in the master plan. If the master plan has been properly done, the project will have been put in proper context vis-a-vis the campus as a whole at the master planning stage. Thus, it is only necessary at the program planning stage to relate to the needs to be met with the project. The refinement process might very well result in the revelation of need to deviate somewhat from numbers contained in the master plan.

If a campus is being planned to be constructed at one time, the master plan and the program plan would be merged into one planning process. This would be an unusual situation, however, and, unless complete funding were to be assured, the institution would probably be wise to phase the planning and carry out highly detailed program planning only for that portion of development which it can realistically expect to have funded immediately.

3. PHYSICAL PLANNING

The physical planning of a specific project is based upon the approved long-range facilities master plan and the specific program plan for the project.

Physical planning consists of the architectural design of the facility and the preparation of the documents upon which contractors base their bids for its construction and ultimately becomes a part of the contract documents used by the successful bidder in accomplishing actual construction. The physical planning services of the architect are divided into several phases:

a. Schematic design during which the basic concept of the facility is developed.

b. Design development during which detailed design considerations are established.

c. Construction documents when actual construction documents are prepared and actual bidding occurs.

Estimates of the construction cost are made at the completion of each of the phases in the physical planning procedure.

Funds with which long-range facilities master planning and program planning are accomplished are appropriated to the Colorado Commission on Higher Education for distribution to the institutions and funds for physical planning are appropriated directly to the institution based upon the recommendation of the Commission and the Governor. At such time as an institution perceives need for master and program planning funds, a request should be submitted to the Commission. If the Commission agrees that a need for the planning exists, an allocation of funds will be made if they are available. If not, a request will be submitted to the Governor and Legislature the next legislative session.

THIS DOCUMENT

This document is designed as a guide for the appropriate and effective development of site selection studies, long-range facilities master plans, and program planning documents.

The presentation of these guidelines is not meant to indicate that planning procedures at the institutions of higher education in Colorado must be forced into a standardized, lock-step approach. All educational institutions are unique in some respect, and any institution would no doubt desire to modify these guidelines in some instances to fit specific conditions. Thus, the rigid and routine application of techniques suggested herein is not intended or recommended.

While these guidelines refer specifically to land and facilities, it is recognized that these elements cannot be properly considered without also taking into account broad-based academic and fiscal master planning for higher education. These guidelines are not intended to include all aspects of academic and fiscal planning; those elements of academic and fiscal planning contained herein are intended to describe the outputs of academic and fiscal planning which are necessary as inputs into facilities planning. This guideline document will be prepared in several sections. Because the data which it contains are urgently needed in order to permit early use, each section or portion of the guidelines will be published upon completion. This accounts for the fact that several empty sections will exist in the guideline manual at the outset.

Although the processes and documentation spoken to herein might suggest a rigid approach to the conduct and implementation of master planning, such is not intended. The system of the past, with master planning funding only once every 5-10 years, and being accomplished on a manual basis, did lead to inflexibility of the planning process. It is hoped that institutional staffing and computerization of much master planning work will make it possible to carry on master planning work on a continuous basis, with major updatings each two years, and at a maximum every five years. If there is no substantive change in the master plan, there should be a reaffirmation of the plan following the same process as established for original approval. Minor updatings of the master planning might be accomplished via a supplemental document labeled "Amendment Number One," etc. and appropriately keyed to the basic comprehensive master plan documents. After a certain period of time the amendments will no doubt accumulate to the point where interpretation of the current status of the plan will be difficult. At that point, it is recommended that there be a major revision and a publication of a new set of master plan documents.

CREDITS

The guidelines which are set forth in this document are based on the work of a great many different individuals over the past decade. Some significant work in the area of college and university space utilization and planning was accomplished by the Committee on Education Beyond High School and the Association of State Institutions of Higher Education in the early 1960's. A. W. Baxter and Associates made a study of college facilities for the Committee on Education Beyond High School in 1960 and the planning-consultant firm of Taylor Lieberfeld and Heldman, Inc. made studies of facilities in 1962. All of this work culminated in the publication of Planning Guidelines for Construction of Facilities at the State-Supported Colleges and Universities in Colorado in December, 1963. This publication was approved by the Association of State Institutions of Higher Education in Colorado and the Colorado State Planning Division (both the Association and the State Planning Division, as originally constituted, have been discontinued).

This current work incorporates many of the guidelines and standards which were included in the 1963 Planning Guidelines. Some adjustments have been made in the standards, however, based on more recent studies, and many guidelines have been added. Substantial information, other than in the area of guidelines, is being included in this document for the first time, based on research of the Commission since its inception in 1965 and on experience with previous guidelines and standards.

The basic work on master planning guidelines was carried out by Lamar Kelsey & Associates in Colorado Springs. John Elmore of Interplan, Incorporated in Denver drafted the basic materials for site selection and program planning. Robert W. Johnson, Associate University Architect at the University of Colorado also provided assistance with the program planning materials.

The Commission has been assisted in this project by a committee made up of a number of institutional, state agency, and architectural-planning firm personnel. This committee has met on a number of occasions and has devoted a great many hours to this project. The committee membership is as follows:

Dr. Gary M. Andrew, Director of Planning, University of Colorado
Robert G. Childress, Partner, Childress/Paulin, Architects/Planners
John Elmore, Vice President, Interplan, Inc.
Dr. Archie Jones, Dean of Academic Affairs, Fort Lewis College*
Larry E. Klatt, Principal Architect, Division of Public Works
John A. McAfee, Director of Campus Planning, University of Northern Colorado
William McGregor, Assistant Director of Business Services, Division of Community Colleges
Dr. G. Owen Smith, Vice President, Community College of Denver
William E. Taber, Director of Facilities Planning, University of Colorado

*As of May, 1973 Dr. Jones is president of Southwest Minnesota State College.

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CAMPUS SITE SELECTION. . . . . A

GENERAL

The selection of a campus site entails the consideration of many factors which will affect construction and operation in the future. Since no two institutions are alike, the overall requirements for a specific site will vary according to the specific need. What may be extremely important to an urban institution may be quite unimportant to a suburban or rural institution. The relevance of most factors will relate specifically to the major form givers of the institution such as:

- Student Population
- Educational Program
- Community Relationships

The initial development of site acreage requirements thus becomes an outgrowth of:

- Buildings
  - Land Coverage
  - Circulation
  - Access
- Outdoor Activities
  - Play Fields
  - Parking
  - Nature Preserves
  - Pedestrian and Automotive Circulation Systems
- Expansion

The size of a site will vary with the specific concepts and goals for institutional development.

ENROLLMENT AND BUILDING SPACE PROJECTIONS

Enrollment size targets and projections accepted by the Commission on Higher Education for planning purposes are shown on Page D1-2 and succeeding pages.

Building space projections should be those calculated on the basis of procedures set forth in Section B of this planning document. As an alternative, space may be calculated using the procedures set forth in Capital Construction Requirements for Higher Education in Colorado, 1970-1980, Colorado Commission on Higher Education, June 1, 1970. Procedures set forth in that document were developed for purposes of broad state-wide projections of space requirements but should be accurate enough for site analysis purposes. Set forth in that document are certain assumed ratios of full-time-equivalent day students to student-station-periods of occupancy of various types of space.

However, more recent studies have been made which show the following actual utilization rates:

	Student-Station-Periods of Occupancy per FTE Student		
	Classrooms	Laboratories	Physical Educ. Facilities
CU-Boulder	11.64	2.91	0.38
CU-Denver	13.49	2.16	--
CU-Colo. Sprgs.	13.09	0.97	--
CSU	12.69	3.23	0.95
CSM	11.47	4.65	1.02
Adams	10.74	3.74	0.57
Metro	12.20	1.38	--
UNC	10.64	1.67	0.33
Western	13.08	1.79	1.30
Lamar	13.94	2.26	--
Otero	10.14	4.01	1.16
Trinidad	9.51	6.29	0.66
Aims	8.17	3.91	--
Mesa	12.28	3.72	0.42
Northeastern	14.07	1.76	0.61
Rangely	8.03	5.21	1.54

The above utilization statistics should be sufficient to serve as a guide to an institution in the application of the following planning guidelines for the areas of classrooms, teaching laboratories, and physical education facilities.

1.	Classrooms and Classroom Service Space	0.75 ASF per SSPO
2.	Teaching Laboratories and Service Space	
	a. Schools with engineering (CU-Boulder and CSU)	3.99 ASF per SSPO
	b. Schools with substantial technical education (MSC, Southern, and the community colleges)	4.04 ASF per SSPO
	c. Colorado School of Mines	5.84 ASF per SSPO
	d. Other Institutions	3.30 ASF per SSPO
3.	Physical Education Facilities and Service	10.00 ASF per SSPO
4.	Other Teaching Facilities and Service (music practice rooms, language labs, etc.)	1.50 ASF per FTE Student
5.	Teaching Faculty Offices and Related Secretarial, Clerical, and Office Service Space	168 ASF per FTE Instructional Faculty and Academic Administrative Staff Member

6. Other Instructional Space (any other instruction-related space not covered by 1 through 5 above, such as art exhibit space, etc.)	5.00 ASF per FTE Student
7. Research Faculty Offices and Related Secretarial, Clerical, and Office Service Space	168 ASF per FTE Research Faculty
8. Other Research Space	No General Guideline Available
9. Extension Administrative Office Space	No General Guideline Available
10. Public Service Space	No General Guideline Available
11. Library Space	
a. Stacks	0.0833 ASF per Volume
b. Readers	6.25 ASF per FTE Student (Total) for Universities; 5.00 ASF per FTE Student (Total) for Other Institutions
c. Service	25 Per Cent of Stack and Reader Space
12. Administrative and General Office Space	
a. Univerities	
First 2,000 FTE Students	6.0 ASF per FTE Student
Next 3,000 FTE Students	4.0 ASF per FTE Student
Next 5,000 FTE Students	3.0 ASF per FTE Student
Next 5,000 FTE Students	2.5 ASF per FTE Student
All over 15,000 FTE Students	2.0 ASF per FTE Student
b. Other Institutions	
First 2,000 FTE Students	5.0 ASF per FTE Student
Next 3,000 FTE Students	3.0 ASF per FTE Student
Next 5,000 FTE Students	2.5 ASF per FTE Student
Next 5,000 FTE Students	2.0 ASF per FTE Student
All over 15,000 FTE Students	1.5 ASF per FTE Student
13. Other Administrative and General Space	No General Guideline Available
14. Physical Plant Service Space	7.5 Per Cent of All Other Educational and General Space

The most recent student/professional staff ratios (calculated by dividing the total student credits for an entire fiscal year by 30 or 45, depending upon whether the credits are semester or quarter credits, and dividing the result by the total number of professional staff in resident instruction) in the area of resident instruction which have been calculated by the CCHE are as follows (based on guidelines described in Section D):

CU-Boulder	17.8/1
CU-Denver	18.2/1
CU-Colo. Sprgs.	20.4/1
CSU	17.2/1
CSM	14.6/1
Fort Lewis	19.2/1
Adams	18.3/1
Metro	20.4/1
Southern	18.1/1
UNC	17.2/1
Western	18.4/1
Arapahoe	20.0/1
CCD	17.8/1
El Paso	16.5/1
Lamar	18.4/1
Morgan County	18.0/1
Otero	18.9/1
Trinidad	16.0/1

In order to apply the library guideline numbers indicated above, it is necessary to have data on the number of volumes to be housed in the library over future years. The following guidelines are used by the CCHE for determining library book needs:

For four-year colleges and universities:

a. 50,750 volumes for a basic undergraduate library
b. 100 volumes for each faculty member
c. 12 volumes for each FTE student
d. 335 volumes for each undergraduate major
e. 3,050 volumes for each master's level program
f. 24,500 volumes for each doctoral program

For community colleges:

a. 16,875 volumes for a basic general education offering
b. 51 volumes for each FTE faculty member
c. 5 volumes for each FTE student
d. 165 volumes for each subject field of study

Estimates of assignable square feet arrived at through application of the above criteria (supplemented with estimates of space for categories not covered by the above, such as auxiliary enterprises) should be converted to gross square feet through use of building efficiency factors set forth in Section D.

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4. Most desirable site shape

5. Appreciation value of real estate

6. Zoning adjacent to site

7. General soil conditions and general structural stability (using Geological Survey data, etc.--no testing)

8. Site preparation costs (cut/fill)

9. Surrounding noise factors

10. Proximity to police and fire protection

11. Proximity to public transportation

12. Proximity to water

13. Proximity to sewer

14. Proximity to electricity

15. Proximity to telephone

16. Proximity to gas or heating fuel

17. Access to and from site (including adjacent freeways)

18. View to site

19. View from site

20. Location in relation to a flood plane

21. Cost of operation and maintenance (due to site factors)

22. Approximate cost of property, total (no appraisals to be obtained)

23. Approximate cost of property, per acre (no appraisals to be obtained)

A general rating system should be used to allow comparisons and analysis. Careful study will allow a reasonable and rational selection of the most likely sites.

DETAILED SITE ANALYSIS

Preliminary analysis should indicate the two or three most likely sites for which a detailed analysis should be made.

Factors considered in the preliminary analysis should be expanded to provide more detail. It will now be necessary to obtain:

1. Detailed topography--United States Geological Survey (USGS) maps and details combined from observation and/or photography.

2. Utilities--Detailed information from utility companies and districts or possible exploratory work if self-contained utilities are to be developed.

3. Soils investigation--Study to determine feasibility of constructing facilities on site. Look for possible expansive soils and explain their effect on foundations.

4. Site Appraisal--Costs of land to be included in site.

FINAL REPORT

The following outline of data sets forth basic information required to understand the site and its feasibility for development. Variations from and additions to this outline are expected as required for individual sites.

1. INTRODUCTION

2. SERVICE AREA

   A. Boundary and land area

   B. Demographic data (namely student population and population centers, student projections)

   C. Geographical center

   D. Socio-economic conditions

   E. Climate considerations

3. PLANNING ASSUMPTIONS

   A. Program--policy

B. Space requirements
   1. Total area of academic buildings
   2. Total area of dormitories and student housing on the sites
   3. Parking requirements
   4. Playing fields
   5. Open space

C. Site access--existing roads, etc.

D. Estimate of gross land area requirements

4. THE GENERAL SITE

A. Auxiliary service and cost to the college as follows:
   1. Fire protection
   2. Police protection
   3. Snow removal
   4. Waste disposal (garbage and solid waste)
   5. Mail service
   6. Food service
   7. Student recreation
   8. Maintenance of roads

B. Utilities
   1. Water
   2. Sewage
   3. Gas
   4. Electricity
   5. Storm Drainage

C. Transportation
   1. Air
   2. Railroad
   3. Bus
   4. Automobile

D. Emergency Health Care

E. Relationship to Community and Community Services
   1. High Schools
   2. Business and Industry
   3. Night Use of Facilities
   4. Public Relations
   5. Student Supervision

5. SPECIFIC SITE

   A. Topographic and Area Maps with Net to Gross Land Use Calculated

   B. Drainage

   C. Subsurface Soil Conditions

   D. Site Clearing--Tree and Rock Removal

   E. Site Acquisition
      1. Title
      2. Easements
      3. Zoning

6. RECOMMENDATIONS

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LONG-RANGE FACILITIES MASTER PLANNING. . . .

B1

SCOPE OF A LONG-RANGE FACILITIES MASTER PLAN

If a long-range facilities master plan is to be a really useful document, it must be prepared in adequate depth to assure its validity and understandability. Anything less runs the grave risk of having been based upon insufficient knowledge, hasty or faulty decisions, and of being so general in nature that incomplete information is presented. Shallow planning is hardly appropriate when one considers the magnitude of tax dollars to be spent on the planning and construction of educational facilities in the rather immediate future.

The following outline presents the basic contents of a comprehensive long-range facilities master plan. Such a plan is divided into two distinct sections--INSTITUTIONAL DATA and the FACILITIES MASTER PLAN. Since educational facilities exist to serve educational need, it is logical that much data about the institution be assembled prior to beginning to plan the campus and facilities to be placed on it.

I. Institutional Data
   A. General
      1. Role
      2. History
      3. Relationships
         a. state system for higher education
         b. community or service area

   B. Service Area
      1. Geographic
         a. boundaries
         b. characteristics
      2. History
      3. Population--present and projected
         a. size
         b. racial characteristics
         c. socio-economic characteristics
      4. Economic basis
      5. Climate (temperature ranges, precipitation, etc.)
      6. Transportation systems
      7. Education
         a. need
         b. systems existing

   C. Policies
      1. Admissions
      2. Academic program
         a. general content
         b. degrees
         c. organizational structure
            (colleges, divisions, schools, departments, etc.)

3. Calendar structure (quarters, semesters, etc.)
4. Community programs
5. Ancillary programs
6. Housing
7. Student services
8. Automobile use and storage
9. Athletics
10. Other

D. Enrollment Size and Distribution Data (Current, Phased Growth, Maximum)
1. Basic enrollment
2. Enrollment distribution by organizational unit
3. Enrollment distribution by local residence

E. Faculty and Staff Size and Distribution Data (Current, Phased Growth, Maximum)
1. By functional area
2. By organizational unit

F. Curriculum and Student Load Projections for First Phase
1. Student-credit projections by organizational unit
2. Contact-hour projections by organizational unit and course

G. Building Space Projections by Functional Use Classification and Enrollment Phase to Maximum
1. Resident Instruction
   a. Classroom and classroom service space
   b. Instructional laboratories and service space
   c. Physical education facilities and service space
   d. Other teaching facilities and service space
   e. Instructional faculty offices and related secretarial, clerical, and office service space
   f. Other instructional space
2. Organized activities related to instruction
3. Research
   a. Research faculty offices and related secretarial, clerical, and office service space
   b. Other research space
4. Extension and Public Service
   a. Office space
   b. Other extension and public service space
5. Library
6. Administration and General
   a. Office space
   b. Other administration and general space

7. Physical plant service
8. Auxiliary enterprises
9. Non-institutional agencies

H. Outdoor Site Facilities Projections by Functional Use Classification and Enrollment Phase to Maximum
   1. Physical education
   2. Recreation
   3. Intercollegiate athletics
   4. Physical plant
   5. Automobile parking
   6. Other

I. Inventory of Existing Facilities
   1. Campus site
      a. location
         1. in service area
         2. in community
      b. environs
         1. land use, zoning
         2. access via transportation networks
         3. visual
      c. boundaries
      d. number acres
      e. topography
      f. subsurface soils conditions
      g. building locations*
      h. circulation systems*
      i. utility systems*
      j. landscaping* or natural plant growth
      k. sign systems*
      l. outdoor site facilities by functional use classification*
         1. physical education
         2. recreation
         3. intercollegiate athletics
         4. physical plant
         5. automobile parking
         6. other

   2. Building data by functional use classification*
      a. diagrammatic floor plan
      b. exterior photograph
      c. physical description
      d. space inventory by functional use classification, room type, and organizational unit

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*Generally not required when planning new institutions.

J. Recommended Use or Removal of Existing Facilities by Enrollment Phase to Maximum*

K. Recommended Construction of New Facilities by Enrollment Phase to Maximum

II. Facilities Master Plan

A. Planning Concepts

1. Ideal functional diagrams
   a. nature and relationships of land-use zones
   b. functional relationships within land-use zones
   c. utilizing the topography
   d. utilizing the subsurface soils conditions
   e. visual scale
   f. weather protection
   g. utilizing the landscape
   h. flexibility for growth
2. Land coverage decisions
   a. building density (height and land coverage) within building zones
   b. parking facilities
      1. surface
      2. structures

B. Campus Plans and Supporting Data by Enrollment Phase to Maximum

1. Land perimeter
2. Land use
3. Circulation Systems and Vehicle Storage
4. Utility systems
5. Building location
6. Topography
7. Landscape concept
8. Facility staging plan

C. Facilities Construction Time Schedule

D. Facilities Construction Economic Studies and Overall Estimates of Costs

E. Summary

III. Appendix

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*Generally not required when planning new institutions.

PUBLICATION OF A LONG-RANGE FACILITIES MASTER PLAN

Since each of the institutions of higher education will ultimately possess completed long-range facilities master plans, the format of the finalprinted pages should be standardized generally using the outline presented on pages B1-1 through B1-4, including the lettered and numbered prefixes.

It is suggested that final reports consist of two basic types of volumes:

The FINAL REPORT should be developed for rather wide distribution. It should contain all the basic master plan data including summary tables taken from the WORKING PAPERS. This book should be considered a presentation document and should be designed and printed in a well-organized and usable manner. It should identify in the preface all volumes constituting the WORKING PAPERS.

The WORKING PAPERS should be published in one or more volumes as the supporting documentation to the FINAL REPORT. These papers will be made up of the detailed computations and tables primarily related to the following:

Student-credit production
Contact-hour computations
New building space computations
Inventory of existing facilities

The WORKING PAPERS are intended for limited distribution at the institution and among the approval agencies. They need not be designed and printed at the higher quality level of the FINAL REPORT. Each volume of the WORKING PAPERS should identify in the preface the FINAL REPORT of which it is a part.

Use and storage of the published documents would be enhanced if they were 8-1/2" x 11" in size, bound either as vertical or horizontal books. It is suggested that the FINAL REPORT be bound with plastic bindings and that WORKING PAPERS volumes be bound with "Acco" type fasteners. These bindings will permit insertion or removal of pages, if necessary, as the campus plan is modified due to its dynamic nature.

APPROVALS OF A LONG-RANGE FACILITIES MASTER PLAN

During the preparation of the long-range facilities master plan, informal review and approval sessions are suggested. These reviews should be made by the CCHE staff on the basis of draft material. Reviews should be as follows:

Review 1. General Information
- a. General Role Identification
- b. Admission Policies
- c. General Academic Program Descriptions and Objectives

Enrollment Size Determination
- a. Phases
- b. Maximum

Review 2. Student & Faculty Projections and Policies
- a. Enrollment Distribution (and Summaries)
- b. Faculty & Staff Distribution (and Summaries)
- c. Curriculum and Student Load Projections

Review 3. Space Need Determination

Review 4. Space Need/Space Available Match

Review 5. Physical Facilities Master Plan

These informal actions will permit planning to be coordinated between the institutional governing board and the Commission and will assist in the avoidance of wasted effort since each planning stage may proceed with relative assurance of having a sound and acceptable basis.

The final published document must have the following formal approvals prior to becoming official:

1. Institution
2. Governing Board*
3. Commission on Higher Education
4. Governor of the State

*The district community colleges must obtain the approval of the State Board for Community Colleges and Occupational Education.

PERIODIC UPDATING OF A LONG-RANGE FACILITIES MASTER PLAN

A long-range facilities master plan must be developed as a FLEXIBLE framework for campus growth. Its concept must recognize the dynamic nature of education. As enrollments grow and/or as academic programs become more comprehensive to serve the increasing complexity

of our society it is inevitable that campus facilities must change. The long-range master plan must be capable of meeting these changing circumstances. Thus, at appropriate intervals, the long-range plan for each campus must be re-evaluated and revised in order to maintain it in a current position. Minor changes which are necessary between major revisions might be accomodated through amendment. Each revision or amendment must receive the approval of the bodies enumerated above.

RELATION TO STATE-WIDE PLAN

The institutional master plan should relate to and be compatible with the state-wide higher education plan issued by the Commission on Higher Education (Planning for the '70s). If the institution should desire to deviate in any way from provisions contained in the state plan, concurrence should be obtained from the Commission at an early point in the institutional master planning effort.

INSTITUTIONAL DATA

A long-range facilities master plan should "be started at the beginning." It is necessary for an institution to undergo a complete analysis of its present and future mission, programs, and goals prior to making any attempt to master plan its physical facilities. After all, the facilities must serve the program of the institution. How may they be properly designed before that program is clearly identified? Thus, it is necessary to generate much institutional data at the very outset. The general scope of that data is described in a previous section of these guidelines. In following sections, specific tables and schedules will be presented to assist in the preparation and presentation of institutional data. As the full range of planning activities is carried out, revisions in these data no doubt will be made. Comprehensive planning should be an interactive process and no data should be prepared which cannot be changed after further analytical work in other areas is carried out.

TABLES

Much of the institutional data are to be compiled and presented in a series of tables. The suggested format of each of the tables is established in these guidelines. It should be noted that the sequence of these tables relates to the outline scope of a long-range facilities plan established on Pages B1-1 through B1-4 of the guidelines. Data contained in each table must be co-ordinated with data in all other tables so the entire long-range plan will "track" from beginning to end. Obviously, data will not necessarily be generated in the specific order of presentation of the tables. Thus, it will be necessary in some instances to prepare tables appearing well into the study in order to complete earlier tables. As an example, it will be necessary to establish the full curriculum by organizational unit including assignment of credit values prior to completing Table B2-c which deals with distribution of the total enrollment (FTE) among the organizational units of the institution.

PLANNING CRITERIA

Presented in Section D are detailed planning criteria to be utilized in the planning process. These criteria are not altogether complete and, in some instances, might not exactly "fit" all institutions. They should be adhered to rather literally at the site selection and master planning phases (to the extent of their coverage). Adequate opportunity exists at the program planning phase for refinement and, if ncessary, justification of deviation from the guidelines.

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LONG-RANGE FACILITIES MASTER PLANNING. .

B2

CAMPUS POPULATION

Campus population--along with educational programs and institutional policies--is a powerful force in the generation of the form of campus facilities growth. The base population of a campus is the sum of the number of students, faculty, staff, and visitors. This section of the guidelines is directed toward projecting the elements of campus population.

ENROLLMENT

Maximum enrollments have been established for each institution of higher education in Colorado. These figures are contained in Section D-1 of these guidelines. Master plans should be directed toward the ultimate accommodation of these enrollment maximums.

Some institutions are relatively close to achievement of their enrollment maximums. Most, however, look toward many years of growth before reaching this target. For the growing institutions, it is necessary to project enrollment at several phases between the present and the time when maximum enrollment is attained. It is suggested that the first interval be that which will be achieved over the five years following the time of the year of the master planning study. Succeeding intervals should be selected on the basis of appropriate enrollment levels beyond the first five years, the particular levels to be selected after evaluation of such factors as (a) the size of the institution, (b) the expected rapidity of growth of the institution, and (c) the maximum enrollment which has been established for the institution. For those institutions which expect to experience a very slow growth, the selection of specific phases should be primarily a function of time (in this case it is suggested there be three phases--out five years, out ten years, and maximum). Those institutions which expect a more rapid growth should establish specific phases on the basis of enrollment growth primarily, with increments of 2,000 students for institutions with a maximum enrollment under 10,000, 3,000 for institutions with a maximum enrollment of 10,000 to 14,999, and 4,000 for institutions with a maximum enrollment of 15,000 or more.

Tables B2-a through B2-d presented on the following pages should be adequate to provide needed enrollment data.

FACULTY AND STAFF

Tables B2-e and B2-f should be used to present summary data on faculty and staff projections. These basic tables should be supplemented with more detailed tables together with appropriate descriptive material that will explain the exact methodology employed in making the projections. The planner will no doubt find it helpful to consult the most recent budget recommendations of the CCHE for guidance in making projections. The CCHE budget recommendations contain a great many statistics on college and university staffing which are useful for planning purposes.

TABLE B2-a ENROLLMENT SUMMARY

Maximum Term Enrollment Category	Present Year ____	Phase 1 Year ____	Phase 2 Year ____	Phase 3 Year ____	Maximum Year ____
Headcount:					
Total					
Non-Credit					
Undergraduate					
Graduate Not Requiring Research Space					
Graduate Requiring Research Space					
Full Time Equivalent:					
Total					
Day:					
Total					
Non-Credit					
Lower Division					
Upper Division					
Beginning Graduate					
Advanced Graduate					
Evening:					
Total					
Non-Credit					
Lower Division					
Upper Division					
Beginning Graduate					
Advanced Graduate					

NOTES:

a. Maximum Term Enrollment is usually the fall student enrollment due to normal attrition during the academic year. If other than fall figures are used, provide backup data.

b. Phase 1 enrollment is normally the projection of enrollment for five years after the year indicated as "present" enrollment. Phase 2 adds the selected increment of students to Phase 1 and so on until "maximum" enrollment is reached.

c. Maximum enrollments for the several institutions may be found in SECTION D1.

TABLE B2-b HEADCOUNT ENROLLMENT BY ORGANIZATIONAL UNIT AND GEOGRAPHIC ORIGIN
(Associate Degree Level, Baccalaureate Level, Master's Level, Doctoral Level)

Degree Level _____

Organizational Unit	Present			Phase 1			Phase 2			Phase 3			Maximum		
	In-State	Out-of State	Total	In-State	Out-of State	Total	In-State	Out-of State	Total	In-State	Out-of State	Total	In-State	Out-of State	Total
Totals															

NOTES:
a. Data presented in this table should be on the basis of the major field of study of students.

b. One table should be prepared for each degree level offered by the institution.

TABLE B2-c FTE ENROLLMENT BY ORGANIZATIONAL UNIT (PRESENT, PHASED, AND MAXIMUM)

Organizational Unit	FTE Students				Student Credit Hour Production														
	Total				Total			Non-Credit			Lower Division			Upper Division			Graduate (Note c)		
	No.	%	Day	Evening	Total	Day	Evening	Total	Day	Evening	Total	Day	Evening	Total	Day	Evening	Total	Day	Evening
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
Totals		100%																	

NOTES:

a. Organizational unit denotes college, division, school, department, etc. The organizational units presented here should be carried through the departmental level, except in those instances when a college, division, or school is not departmentalized.

b. Data on this table must track with data on Table B2-a. For example, the total of column M on Table B2-b divided by 15 should be the same as lower division day FTE students shown on Table B2-a.

c. Combine Beginning Graduate and Advanced Graduate in the Graduate columns.

d. FTE students equal student credit production divided by 15 in each category (See Section D2).

e. This table must be developed for each enrollment phase indicated in Table B2-a (Present, Phased, and Maximum).

TABLE B2-d ENROLLMENT DISTRIBUTION BY LOCAL RESIDENCE[a]

MAXIMUM TERM ENROLLMENT CATEGORY	PRESENT YEAR	PHASE I	PHASE 2	PHASE 3	MAXIMUM
HEADCOUNT: TOTAL					
HC DISTRIBUTION:					
SINGLE MEN:					
COLLEGE HOUSING[b]					
COMMUTING[c]					
TOTAL					
DAY[d]					
EVENING[d]					
SINGLE WOMEN:					
COLLEGE HOUSING[b]					
COMMUTING[c]					
TOTAL					
DAY[d]					
EVENING[d]					
MARRIED STUDENTS:					
ONE STUDENT PER FAMILY:					
COLLEGE HOUSING[b]					
COMMUTING[c]					
TOTAL					
DAY[d]					
EVENING[d]					
TWO STUDENTS PER FAMILY:					
COLLEGE HOUSING[e]					
COMMUTING[c]					
TOTAL					
DAY[d]					
EVENING[d]					
TOTALS					

NOTES:

a. Data in this table must track with data in Table B2-a. This table must be developed for each enrollment phase indicated in Table B2-a.

b. "College Housing" describes those students residing in on-campus housing facilities.

c. "Commuting" describes those students residing in off-campus housing.

d. The total of day and evening students should equal the total of college-housed and commuting students.

e. The count here should be the total number of students. Thus, if the count here is 200, this figure will be interpreted to mean that 100 housing units will be required to accommodate the students.

TABLE B2-e FACULTY AND STAFF BY FUNCTIONAL AREA

Staff Category	Present Year____			Phase 1 Year____			Phase 2 Year____			Phase 3 Year____			Maximum Year____		
	Total	Day	Eve.	Total	Day	Eve.	Total	Day	Eve.	Total	Day	Eve.	Total	Day	Eve.
RESIDENT INSTRUCTION															
Faculty and Academic Administrators															
Headcount															
Full-Time Equivalent[a]															
Non-Student Support Personnel (HC)															
RESEARCH															
Faculty and Academic Administrators															
Headcount															
Full-Time Equivalent															
Total															
Requiring Laboratory Space[b]															
Not Requiring Laboratory Space															
Non-Student Support Personnel (HC)															
ORGANIZED ACTIVITIES RELATED TO INSTRUCTION[c]															
Professional Personnel (HC)															
Non-Student Support Personnel (HC)															
LIBRARY															
Professional Personnel (HC)															
Non-Student Support Personnel (HC)															
EXTENSION AND PUBLIC SERVICE[d]															
Professional Personnel (HC)															
Non-Student Support Personnel (HC)															
ADMINISTRATION AND GENERAL															
Professional Personnel (HC)															
Non-Student Support Personnel (HC)															
PHYSICAL PLANT OPERATION AND MAINTENANCE															
Professional Personnel (HC)															
Non-Student Support Personnel (HC)															
AUXILIARY ENTERPRISES[e]															
Professional Personnel (HC)															
Non-Student Support Personnel (HC)															
NON-INSTITUTIONAL AGENCIES (HC)															

a. Coordinate with data on Table B2-f; see student/faculty ratios in Section D1.

b. This category should be further sub-divided according to the academic discipline categories shown under "Other Research Space" in Section D1.

c. This category should be further sub-divided according to individual organized activity.

d. Only those personnel who are located on campus should be listed here.

e. This category should be further sub-divided according to enterprise; i.e., housing, food service, student union, etc.

TABLE B2-f INSTRUCTIONAL FACULTY PROJECTIONS (FTE)

Organizational Unit and Level	Present Year			Phase 1 Year _____			Phase 2 Year _____			Phase 3 Year _____			Maximum _____		
	FTE Students	Student/ Faculty Ratio	FTE Faculty	FTE Students	Student/ Faculty Ratio	FTE Faculty[a]	FTE Students	Student/ Faculty Ratio	FTE Faculty[a]	FTE Students	Student/ Faculty Ratio	FTE Faculty[a]	FTE Students	Student/ Faculty Ratio	FTE Faculty[a]
A	B	C	D=B÷C	E	F	G E=F	H	I	J=H÷I	K	L	M=K÷L	N	O	P=N÷O
Total Institution[b]															

[a]If a different methodology for projecting instructional faculty is employed, this table might be modified to reflect the requirements of the method which is used. The specific method for calculating instructional faculty requirements should be presented.

[b]The difference between totals shown on this line and the amounts shown on the line for Resident Instruction Faculty and Academic Administrators (FTE) on Table B2-e should equal academic administrative staff.

VISITORS

While definitive projections of the number of visitors who can be expected on a campus are hardly feasible, the matter is of consequence and deserves more than passing consideration. Provisions must be made for routine day-to-day visitors who may be expected at many of the facilities on campus. Obviously, there will be need for automobile parking facilities, information centers, waiting areas, etc., for these people. When special events involving visitors as participants or spectators are held on campus, demand for facility provisions may be rather substantial. Athletic events, performing arts, etc., will all contribute to this area of facility demand.

Certainly, policy decisions regarding elements which relate to campus visitors must be obtained by the campus planner prior to making any attempt to determine the scope of on-campus vehicle circulation and storage facilities, as well as other facilities.

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B3

LONG-RANGE FACILITIES MASTER PLANNING.

BUILDING SPACE PROJECTIONS--TOTAL

The assignable area in square feet (ASF) of building space needed on a campus may be determined based upon the number of people to occupy the facility and the functions which they undertake while there. Assignable area may then be converted to gross area in square feet (GSF) through the use of appropriate conversion factors (See Section D1).

Building space needs for the various structures on a campus at its several growth phases to maximum growth are an essential element of the long-range campus master plan.

NEW CAMPUSES

Unless new campuses make use of existing facilities for the purposes of the institution, the projection of building space involves the consideration of new facilities only. In that instance, it is necessary to make use of the data in this section of the guidelines without consideration of the effects of continued use of existing building space.

CAMPUSES WITH EXISTING FACILITIES

On existing campuses, or new campuses which will make use of some existing buildings, the procedure of determining the construction of new building space and the use of existing building space is a more complex operation. In this instance, the following steps are logical:

1. BUILDING SPACE PROJECTIONS

   Total building space needs must be projected at the several phases of campus growth to maximum growth. Procedures for making these projections are described in this section of the guidelines.

2. INVENTORY OF EXISTING FACILITIES

   An inventory must be made describing existing facilities, establishing their present use and condition, as well as stating their appropriateness for continued use and life expectancy.

3. USE OF EXISTING FACILITIES

   Prior to recommending construction of new facilities, appropriate steps must be taken to assure the highest possible effective utilization of existing facilities with due consideration of operating costs. Greater utilization of capital resources should not be planned if inordinately high operating inefficiencies result.

Utilization through Phase 1 should be established on a highly detailed basis whereas for phases after Phase 1 a more generalized approach should be taken. If it is possible to ascertain that certain facilities will be removed at a point in time beyond Phase 1 development, this information should be incorporated in the plan.

4. CONSTRUCTION OF NEW FACILITIES

After space provided in existing facilities is deducted from total space needs at the several enrollment growth phases to maximum, the remainder of space needs must be met through the construction of new buildings.

BUILDING SPACE PROJECTION CATEGORIES

Space projections shall be grouped into the following categories:

1. Resident Instruction
   a. Classroom and classroom service space
   b. Instructional laboratories and service space
   c. Physical education facilities and service space
   d. Other teaching facilities and service space
   e. Instructional faculty offices and related secretarial, clerical, and office service space
   f. Other instructional space
2. Organized activities related to instruction
3. Research
   a. Research faculty offices and related secretarial, clerical, and office service space
   b. Other research space
4. Extension and Public Service
   a. Office space
   b. Other extension and public service space
5. Library
6. Administration and General
   a. Office space
   b. Other administration and general space
7. Physical plant service
8. Auxiliary enterprises
9. Non-institutional agencies

It is intended that this general listing will cover all facility types on a campus.

Various space standards and criteria relating to the above are presented in Section D1. These standards should be followed wherever appropriate and any deviation from them should be justified in the planning documents.

INSTRUCTIONAL SPACES

Projection of needs for instructional spaces at Phase 1 of campus growth (five years from present), or at maximum enrollment if final growth will be reached in five years or less, shall be based upon highly detailed data involving specific curriculum content, etc. Space projections beyond five years from the present might be based upon weighted projections of the five-year (Phase 1) data as related to enrollment growth, adjusted to reflect predictable changes in space utilization as the size of the student body changes.

An estimate of the complete fall term (semester or quarter) curriculum at Phase 1 (or maximum enrollment if final growth will be reached in five years or less) shall be made on forms similar to Table B3-a assigning credit-hour values to each course and estimating enrollment in each course. The total student-credit-hour production for the institution must develop FTE student numbers which concur with those projected at this enrollment period in Table B2-c and the FTE student numbers in each organizational unit must concur with those shown in Table B2-b. In most institutions, day enrollments in relation to day hours available will exceed evening enrollment loads in relation to evening hours available and, thus, facilities needs will be based upon day schedules with the knowledge that evening classes, if any, will have more than adequate space. In some instances--most likely at urban institutions--evening enrollments might be greater in relation to evening hours available than daytime enrollments are to daytime hours available and might become the basis for the programming of some or all instructional space needs. If this is the case, adjustments may become necessary in the tables and in utilization standards. These adjustments should be reviewed in depth with CCHE staff at an early point in the planning process.

"Present year" data as presented on Table B3-a should be presented on a course-by-course basis. However, the planner would perhaps find it helpful to group like-type courses within given organizational units for projection to subsequent phases. Such groupings should then be carried through Tables B3-b and B3-c. Care should be taken to insure that the grouping of courses honors the credit value of courses, the level of courses, the number of room contact hours in classrooms, the number of room contact hours in a given type of laboratory, and the appropriate section size. For example, a "Type 1" history course might be a lower level course with a credit value of three which meets three hours per week in a classroom and which can accomodate 40 students in each section. The typings should be done on the basis of a consideration of all resource requirements, not just space requirements.

Next, on Table B3-b credit hours for each course are converted to contact hours, optimum section sizes are established, the number of sections required are calculated, and the room-contact hours per week are established. Some courses require several kinds of spaces (i.e., classroom and laboratory or several classroom-size configurations for lecture and subsequent discussion groups, etc.). This is taken into account by the table.

On Table B3-c , room-contact hours for all sections (transferred from Table B3-b) are converted to the number of rooms required for each room type. Then, using appropriate standards, the size of each room is computed.

As has been pointed up previously, projections of space requirements for Phase 1 development should be made on a detailed basis, whereas a more generalized approach can be taken for purposes of projecting to subsequent phases of development. It is suggested that Phase 1 projections be used as a basis for calculating average assignable square feet per full-time-equivalent student in various space categories (or similar averages) and the averages then applied to projected FTE students as set forth in Table B2-c. Such generalized projections should be made with some care, however, since certain spaces might be incorporated in Phase 1 planning which will not need to be expanded in direct proportion to expansion of students. For example, a laboratory might be incorporated in Phase 1 planning (and thus in the averages) which will not be fully utilized at that level and which can accomodate additional students beyond Phase 1.

Table B3-c should be prepared on a simulated basis, without reference to existing space. After all space projections have been made as per B3-c, B3-d, and similar types of tables which the planner might devise, the projections should be related to existing space.

Table B3-d should be used to show projections of faculty and staff office space. Data presented in this table should be based on projections of faculty and staff for resident instruction and research as presented in Table B2-e.

RESEARCH SPACE

Table B3-e has been prepared to serve as a guide in projecting research space other than office space for research personnel. Projections should be made for (a) individual work space for faculty/professional research personnel and graduate students engaged in research, including related service space, and (b) space for large-scale specialized equipment and technical services used in supporting research programs.

Included in Section D1 are criteria which can be used in calculating space requirements for individuals engaged in research. These criteria are typical, and should not be followed literally in all cases. They were developed on the basis of a principle that the amount of bench space or work area a person can utilize effectively is a function of the physical limitations that characterize all individuals. Wherever the individual is not the dominant element in the research environment, as is the case in certain engineering research or large animal studies, the development of research space estimates cannot be based on criteria that are oriented towards human characteristics alone.

Research facilities not directly related to individual work area requirements should be dealt with separately, with space requirements determined by the nature of the facility. Examples would be cyclotrons, wind tunnels, and the like.

LIBRARY SPACE

Table B3-f, or an adapted version of same, should be used to show projections of library space requirements. This type of table is adequate for master planning purposes but program planning for a library should be a great deal more detailed.

OTHER SPACE

No illustrative tables are being presented at this time for purposes of showing space projections for other areas. However, the planner should systematically develop space projections for each area in addition to those previously covered and should present those projections in appropriate formats similar to those shown in this section. For example, in the area of administrative and general office space, Table B3-d can be adapted for purposes of showing space projections for each organizational unit.

TABLE B3-a ENROLLMENTS AND STUDENT CREDITS

Organizational Unit	Course Number	Brief Course Description	Course Type	Course Credits	Level of Course (Lower, Upper, etc.)[a]	Present Year				Phase 1 Year			
						Fall Enrollment		Student Credits		Fall Enrollment		Student Credits	
						Day	Evening	Day	Evening	Day	Evening	Day	Evening
A	B	C	D	E	F	G	H	I	J	K	L	M=E x K	N=E x L

[a]Courses within an organizational unit should be arranged with non-credit or remedial courses first, lower level courses second, etc. Use "N" to designate non-credit, "L" for Lower, "U" for Upper, "G1" for Graduate 1, and "G2" for Graduate 2. Data in columns G through N should be totaled for each level within each organizational unit. These totals should track with data presented on Table B2-c.

TABLE B3-b ROOM CONTACT HOURS AND STUDENT CONTACT HOURS BY COURSE[a]

Organizational Unit	Course Number	Day Enrollment at Phase 1[b]	Classroom 1									Classroom 2								Instructional Laboratory								
			Room Contact Hours per Section	Total Student Contact Hours	Section Size			No. Sections Required	Total Room Contact Hours per Week	Est. Average Section Size		Room Contact Hours per Section	Total Student Contact Hours	Section Size			No. Sections Required	Total Room Contact Hours per Week	Est. Average Section Size		Room Contact Hours per Section	Total Student Contact Hours	Section Size			No. Sections Required	Total Room Contact Hours per Week	Est. Average Section Size
					Minimum	Optimum[c]	Maximum							Minimum	Optimum[c]	Maximum							Minimum	Optimum[c]	Maximum			
A	B	C	D	E=CxD	F	G	H	I	J=DxI	K=C÷I		L	M=CxL	N	O	P	Q	R=LxQ	S=C÷Q		T	U=CxT	V	W	X	Y	Z=TxY	AA=C÷Y

[a]Courses should be listed on this table in the same order as presented on Table B3-a.

[b]Enrollments as reported in this column should be the same as enrollments reported in Column J of Table B3-a.

[c]The section size most desirable for teaching purposes.

NOTE: "Classroom 1" and "Classroom 2" designations shown in this table are to make it possible to calculate space requirements when two different classroom settings are required for the same course; e.g., a course which meets one day a week in a large lecture setting and two days a week in a small discussion setting.

TABLE B3-c CLASSES SCHEDULED INTO _____ FACILITIES[a]

Room Identification	Room											Schedule of Classes		
	Guidelines					Planned								
	Sq. Ft. Prime Space	Stations		Service Space		Sq. Ft. Prime Space	Stations		Service Space			Organizational Unit and Course No.	Section Size	Room Contact Hours
		No.	Sq. Ft. per Sta.[b]	Sq. Ft.	% of Prime Space		No.	Sq. Ft. per Sta.[b]	Sq. Ft.	% of Prime Space				

[a]A separate table should be prepared for (a) classrooms, (b) instructional laboratories, (c) physical education facilities, and (d) other teaching facilities. If a service area is being planned to serve more than one classroom, lab, or physical education space, the rooms being served should be listed consecutively with the service area being identified with the room it would serve. Any significant deviation from the guidelines contained elsewhere in this publication should be explained and justified in supplementary narrative. Existing spaces should be presented first in this table, with proposed new spaces following.

[b]Include circulation space within the room.

TABLE 83-d PROJECTIONS OF INSTRUCTIONAL AND RESEARCH FACULTY OFFICES AND RELATED SECRETARIAL, CLERICAL, AND OFFICE SERVICE SPACE

Organizational Unit _____

Staff Category	Present Year			Phase 1			Phase 2			Phase 3			Maximum		
	Number Stations	Sq. Ft. per Station	Sq. Ft.	Number Stations	Sq. Ft. per Station	Sq. Ft.	Number Stations	Sq. Ft. per Station	Sq. Ft.	Number Stations	Sq. Ft. per Station	Sq. Ft.	Number Stations	Sq. Ft. per Station	Sq. Ft.
State Funded Instruction:															
1. Academic Vice-President, Dean of College															
2. Department Chairman, Associate Dean of College															
3. Faculty Requiring Studio Offices (Art/Music)															
4. Other Faculty															
5. Graduate Assistants															
6. Secretarial and Clerical															
Sub-Total State-Funded Instruction															
Sponsored Instruction:															
1. Faculty Requiring Studio Offices (Art/Music)															
2. Other Faculty															
3. Graduate Assistants															
4. Secretarial and Clerical															
Sub-Total Sponsored Instruction															
State-Funded Research:															
1. Faculty Requiring Studio Offices (Music/Art)															
2. Other Faculty															
3. Graduate Assistants															
4. Secretarial and Clerical															
Sub-Total State-Funded Research															
Sponsored Research:															
1. Faculty Requiring Studio Offices (Music/Art)															
2. Other Faculty															
3. Graduate Assistants															
4. Secretarial and Clerical															
Sub-Total Sponsored Research															
Total Office Space															
Office Service:															
% of Office Space															
Total Sq. Ft.															
Conference Rooms															
File/Storage Rooms															
Other:															
_____															
_____															
_____															
Grand Total Offices and Office Service Space															

NOTE: A separate schedule should be prepared for each academic department.

TABLE 83-e PROJECTIONS OF RESEARCH SPACE (OTHER THAN OFFICES)

Organizational Unit _____

	Present Year			Phase 1			Phase 2			Phase 3			Ma...		
	No. Requiring Research Space	Sq. Ft. per Station	Sq. Ft.	No. Requiring Research Space	Sq. Ft. per Station	Sq. Ft.	No. Requiring Research Space	Sq. Ft. per Station	Sq. Ft.	No. Requiring Research Space	Sq. Ft. per Station	Sq. Ft.	No. Requiring Research Space	Sq. Ft. per Station	Sq. Ft.
Stations for Researchers:															
Primary Space:															
State-Funded:															
Faculty and Professional															
Graduate Students															
Sub-Total State-Funded															
Sponsored Research:															
Faculty and Professional															
Graduate Students															
Sub-Total Sponsored															
Sub-Total Primary Space															
Service Space:															
% of Primary Space															
Square Feet															
Total Primary and Service Space															
Other Research Space (Identify):[a]															
Primary Space:															
Sub-Total Other															
Service Space:															
% of Primary Space															
Square Feet															
Total Primary and Service Space															
Grand Total Research Space															

[a]Included here should be space to house large scale specialized equipment and technical services used in supporting research programs.

TABLE B3-f PROJECTIONS OF LIBRARY BOOKS AND SPACE Phase _____

Category	Number	Volumes per Institution, FTE, or Degree Program	Total for Category (A x B)
	A	B	C
Volumes:			
Basic Collection		50,750 or 16,875[a]	
Total FTE Faculty		100 or 51[b]	
Total FTE Students		12 or 5[c]	
Assoc. Degree Programs		165	
Bacculaureate Degree Programs		335	
Master's Degree Programs		3,050	
Doctoral Degree Programs		24,500	
TOTAL VOLUMES	--	--	

Category	Number	Conversion Factor per Volume, Student or Sq. Ft.	Total ASF for Category (D x E)
	D	E	F
Stack and Reader Space:			
Total Volumes		.0833	
Total FTE Students		6.25 or 5[d]	
Total Stack and Reader Space		--	
Service Space:			
Total Stack and Reader Space*		--	
*If Under 40,000 ASF		.23	
*If 40,000 ASF or Over		.19	
TOTAL ASF	--	--	

a. 50,750 for four-year colleges and universities; 16,875 for two-year colleges.

b. 100 for four-year colleges and universities; 51 for two-year colleges.

c. 12 for four-year colleges and universities; 5 for two-year colleges.

d. 6.25 CU-Boulder, CSU, and CSM; 5 for other institutions.

NOTE: If a different methodology for projecting library books and space is employed, this table might be modified to reflect the requirements of the method which is used. The specific method for calculating library book and space requirements should be presented.

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LONG-RANGE FACILITIES MASTER PLANNING.

B4

INVENTORY OF EXISTING PHYSICAL PLANT

For existing institutions which will continue to occupy part or all of their present facilities or for new institutions which will convert buildings or other facilities already existing into educational facilities, it is necessary to generate and present a substantial amount of data about the existing physical plant. These data shall—in a single, well prepared package—present a comprehensive overview of the entire facilities of the institution including the amount and nature of its land holdings, the surface and subsurface development of its land, and much information about its buildings. It shall include all facilities which now exist and/or for which construction funds have been provided. Any facilities for which physical planning funds have been appropriated should be included to the depth that available information will permit. This will provide the institution an effective and immediately accessible document which reports on physical plant in adequate detail.

The following data are essential elements of the inventory of existing physical plant:

1. CAMPUS SITE OR SITES
   A diagrammatic map showing the boundaries of the institution's service area and the location of the institution's main campus and other land holdings. Identify whether land holdings are owned, leased, rented, etc.

2. MAIN CAMPUS OR CAMPUSES
   A diagrammatic map showing the location of the main campus and other major permanent facilities or campuses in the city or community within which the main campus is located (e.g., at CSU, the main campus and the Foothills Campus, or at UNC, the three major campus areas). Include rented facilities (with special identification) if it is anticipated that such rental will be on a long-term basis.

3. ENVIRONS
   Diagrammatic maps and written descriptions of the environs of the main campus or campuses including zoning, land use, access networks, visual characteristics, utility systems, etc.

4. GENERAL DATA
   All data required on CCHE Form A-4, Land Inventory.

MAIN CAMPUS OR CAMPUSES

Detailed campus maps and/or written descriptions of the following:

1. BOUNDARIES AND RESTRICTIONS
   Provide a boundaries map based upon current abstracts of all land holdings. Provide accurate information on all such restrictions as easements, rights-of-way,

restrictive conditions imposed upon use of lands (i.e., restrictions imposed upon use of land by the donor of the land, etc.).

2. TOPOGRAPHY AND DRAINAGE

Provide a topographic map or maps of all campus land holdings which are either already developed or will be considered for development within the time span of this master plan. Normally, topography based upon the aerial photography method will be sufficiently accurate but, in special cases, land surveys may be required. In most instances, the aerial topography method will prove to be the least costly and will generally be adequately accurate for raw land. In many instances, topography obtained for this facilities inventory will also be suitable for use in the physical planning of actual projects. At other times, more accurage data may be necessary. These matters should be discussed and determined for each campus prior to undertaking a topographic survey. At this time, such matters as contour interval will be determined. Any surface drainage problems should be identified and described.

3. SUBSURFACE SOILS CONDITIONS

Adequate data must be obtained regarding the ability of subsurface soils conditions of land holdings to accept campus development. This includes the ability of soils to economically support building foundation loads and to be contoured as required. Subsurface water, if any, should be indicated. On raw land, it will probably be necessary to drill an appropriate number of test holes in order to determine subsurface conditions. On developed land, it is likely that investigations and reports already exist and may be used as a basis for a general summary statement.

4. SURFACE LAND DEVELOPMENT

Provide a map or maps indicating locations of all surface development including buildings, streets, sidewalks, parking lots, paved courts, fields, general location and type of landscape elements, air or surface utilities, etc. These maps may be combined with topographic maps if desired.

5. UNDERGROUND UTILITIES

Provide a map or maps showing size, approximate or actual location, depth, etc., of all underground utilities systems.

BUILDINGS

1. KEY MAP

Provide a key map identifying each building by name and the code numbers used in the room inventory.

2. EACH BUILDING
For each building shown on the key map, provide the following:

a) Exterior photograph of major facade.

b) Diagrammatic floor plans at small scale identifying each room by room number, functional use, room type, number of stations, and area as indicated in the room inventory.

c) General building description per Table B4-a (no sample format provided)

d) Space summary per Table B4-b

AUTOMOBILE PARKING FACILITIES

1. KEY MAP
Provide a key map identifying each automobile parking facility by type (surface lot, structure, or on-street) and capacity, and code number used in the parking facility inventory forms. On relatively simple campuses, this key map may be combined with the key map for buildings.

2. EACH PARKING FACILITY
Using Tables B4-c through B4-e , provide data for each parking facility.

OTHER SURFACE DEVELOPMENT

1. KEY MAP
Provide a key map identifying significant surface development of campus land for other than buildings or automobile parking facilities. (example: paved courts for physical education, athletics, or recreation; grandstands; grass fields for physical education, athletics, or recreation; etc.) On relatively simple campuses, this key map may be combined with key maps for buildings and parking facilities. Identify each surface development included on the key map with the code number and use described in the inventory.

2. EACH FACILITY
Provide adequate descriptions of each facility including use, size, condition, etc.

AUTOMOBILE PARKING

When land-use patterns on almost every campus are examined, it becomes evident that the storage of parked automobiles has rapidly become one of the several major functions which consumes campus land. Actually, the automobile at best takes up more space than that needed for the housing of a single student. In the square footage occupied by twenty automobiles, three hundred students could be given instruction. Thus, the matter of programming facilities for automobile parking is of considerable importance.

DETERMINING PARKING NEED

Demand for automobile parking facilities is shaped by many influences—enrollment, policy, physical characteristics of the campus, off-campus provisions, economic considerations, habits of automobile users, availability of mass transit, and a number of other things. These influences will vary broadly from campus to campus.

Generally, parking facilities will be required for students, faculty, staff and visitors. Policy decisions will be required for each category of user.

Analyses of the need (demand) for automobile parking facilities should be based upon information gathered from a series of questions similar to the following:

1. Policy
   a. Will limitations be imposed upon the use of automobiles by students, faculty, staff and/or visitors? If so, what will they be?
   b. Will parking fees be charged? If so, what will be their approximate amount by classification of user?*
   c. Will restrictions be placed upon which parking facility may be used by the several classifications of auto user?
   d. Will registration of vehicles be required?
   e. Will curb parking be permitted on the campus street network? If so, will parking regulated?
   f. Will curb parking be permitted on the street network surrounding the campus? If so, will parking time be limited?
   g. For whom and for what types of on-campus activities or functions will visitor parking facilities be provided? Parking demand by visitors can range from limited need at such visitor used buildings as the administration building, union, library, etc. to vast need at spectator facilities for the performing arts, athletic events and other such affairs.

---

* Present policy provides that appropriated state funds will provide for facilities for parking of state-owned vehicles only.

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SUBMITTED TO ERIC DOCUMENT REPRODUCTION SERVICE.

On some campuses, a great portion of the auto parking is accommodated at the curbs of the campus street network. Frequently, this is an ugly and dangerous answer to the problem.

Location of parking facilities should be determined in large measure on the basis of the destination of the driver. Other factors which should be considered are campus policy and many aspects of general campus layout including the pattern of the street network, building location, location of available open land areas, contour of terrain, etc.

It might well be noted that, in some instances, parking facilities for visitors who are spectators at large public events on-campus are sometimes provided on grass field areas used for physical education or as environmental green spaces. Frequently, this practice results in damage to such areas which is costly to repair. A decision to follow this practice should be carefully made.

When land for parking facilities is simply not available on campus, remote parking lots may be workable using a system of shuttle buses to reach the campus destination.

STUDENT DEMAND

Calculating the need or demand for parking facilities is difficult. Most methods of measuring demand are so time consuming and complex that they are by-passed in favor of the somewhat arbitrary method of present parking usage on campus and projecting this historical data into the future, weighting it to reflect probable trend changes.

A study of vehicle registration will frequently produce the number of vehicles registered to each category of user (resident students, non-resident students, etc.). The CAR OWNERSHIP RATIO (COR) may be computed for each user classification through the following formula:

$$\text{COR} = \frac{\text{Total Population (Resident Students)}}{\text{No. of vehicles registered (resident students)}}$$

The CORs developed for each user classification may be weighed and applied against population projections to compute future student parking demand.

The number of students in class during the maximum class hour of the week is used with the CORs to determine how many student vehicles are on campus during the maximum hour (or time of peak usage). The number of resident-student vehicles in the parking lots will probably remain about constant during the week, as will faculty-staff requirements. However, non-resident student requirements will vary considerably during the day and this is the reason the peak class hour is used.

An examination of the general trend of car ownership, using the past and present CORs for each category of parkers, will establish appropriate ratios for future years. It is expected that, with car ownership on the rise throughout the nation, and certainly with young people, these ratios will be no larger than the present CORs found and will probably be smaller. All future constraints should be taken into account. For instance, it should be recognized that, if the current administration's policy is not to build new dormitories and not to restrict en-

rollment, student enrollment increases will occur within the non-resident body. Therefore, very little, if any additonal resident student parking will need to be provided. However, under these circumstances, non-resident student parking may quickly become critical.

FACULTY-STAFF DEMAND

The car ownership ratios for faculty and staff are used in conjunction with the maximum expected numbers of faculty and staff members on campus at any one time in order to determine the number of faculty-staff vehicles on campus. By using historical and current car ownership ratios, projections of expected number of vehicles on campus, given the future number of faculty-staff members, can be made.

TURN-OVER

The actual capacity of campus parking facilities must exceed the number of vehicles to be accommodated in order to permit turn-over of spaces between peak load periods ONLY if the peak load periods occur back-to-back. In other words, if two peak load periods occur back-to-back, it would not be possible for sufficient parking spaces to be vacated and new vehicles accommodated within the time period available between classes.

TABLE B4-b BUILDING SPACE SUMMARY BY TYPE OF SPACE[a]

Function or Room Type	Function Code	Room Type Code	Total Square Feet
Resident Instruction:	10		
Classroom	10	110	
Classroom Service	10	115	
Etc.			
Organized Activities:	15		
Classroom	15	110	
Classroom Service	15	115	
Etc.			
Research:	20		
Faculty Offices	20	311	
Etc.			
TOTAL			

[a]Include all assignable and non-assignable room areas.

TABLE B4-c
SURFACE PARKING LOT INVENTORY

Note: This questionnaire pertains only to surface parking lots used daily for normal campus activities. Omit special-use facilities used only for athletics or other spectator events, etc. A scale diagram of the lot may accompany this form if desired.

1. KEY NUMBER ON SITE PLAN _____

2. NUMBER OF SPACES PROVIDED _____

3. GENERAL USE DATA

a. Is use restricted? Yes _____ No _____

If so, to whom?
- Students _____
- Faculty _____
- Staff _____
- Visitors _____

b. Are spaces reserved? Yes _____ No _____

c. Are control devices used? Yes _____ No _____

If so, what type?
- Special permits _____
- Parking meters _____
- Cashier _____
- Automatic gates _____
- Other methods _____

(Explain)

d. Is parking lot related by location or use to a specific building or building group? Yes _____ No _____

If so, state building function (academic, residence hall, etc.) _____

4. GENERAL FACILITY DATA

Describe scope of facility

a. Asphalt or concrete paving Yes _____ No _____

b. Painted stripes Yes _____ No _____

c. Concrete or asphalt curbs, bumpers, etc. Yes _____ No _____

d. Lighting Yes _____ No _____

e. Describe condition of facility (Explain if necessary) Good ___ Fair ___ Poor ___

TABLE B4-d
PARKING STRUCTURE INVENTORY

Note: This questionnaire pertains only to parking structures used daily for normal campus activities. Omit special-use facilities used only for athletics or other spectator events, etc. A scale diagram of each floor of this facility must accompany this form.

1. KEY NUMBER ON SITE PLAN _____

2. NUMBER OF SPACES PROVIDED _____

3. GENERAL USE DATA

a. Is use restricted? Yes _____ No _____

If so, to whom?

Students _____

Faculty _____

Staff _____

Visitors _____

b. Are spaces reserved? Yes _____ No _____

c. Are control devices used? Yes _____ No _____

If so, what type?

Special permits _____

Parking meters _____

Cashier _____

Automatic gates _____

Other methods _____

(Explain)

d. Is parking structure related by location or use to a specific building or building group? Yes _____ No _____

If so, state building function (academic, residence hall, etc.) _____

4. GENERAL FACILITY DATA

Describe scope of facility

a. Number of stories including ground level _____

b. Type of construction (concrete, steel, etc.) _____

c. Is facility above or below grade? Above _____ Below _____

d. Is facility lighted? Yes _____ No _____

e. Describe condition of facility (Explain if necessary) Good _____ Fair _____ Poor _____

TABLE B4-e

ON-STREET (CURB) PARKING INVENTORY

Note: This questionnaire pertains only to on-street (curb) parking spaces used daily for normal campus activities. Omit any special-use spaces. Provide a site plan identifying location of curb parking areas.

1. KEY NUMBER OF AREA ON SITE PLAN _____

2. NUMBER OF SPACES PROVIDED _____

3. GENERAL USE DATA

   a. Is use restricted? Yes _____ No _____

      If so, to whom?

      Students _____

      Faculty _____

      Staff _____

      Visitors _____

   b. Are spaces reserved? Yes _____ No _____

   c. Are control devices used? Yes _____ No _____

      If so, what type?

      Special permits _____

      Parking meters _____

      Other methods (Explain) _____

   d. Is on-street (curb) parking related by location or use to a specific building or building group? Yes _____ No _____

      If so, state building function (academic, residence hall, etc.)

      _____

4. GENERAL DATA

   Describe scope of parking

   a. Marking of spaces Parallel _____ Diagonal _____

   b. Is street paved? Yes _____ No _____

TABLE B4-f
AUTOMOBILE PARKING FACILITY INVENTORY - SUMMARY

Note: On this form, enter data which have been set forth in detail on Tables B4-c, B4-d, and B4-e.

1. SURFACE PARKING LOT SPACES
   a. Number of unassigned spaces _____
   b. Number of assigned spaces
      1. students _____
      2. faculty _____
      3. staff _____
      4. visitors _____
      5. total _____
   c. Total surface parking lot spaces _____

2. PARKING STRUCTURE SPACES
   a. Number of unassigned spaces _____
   b. Number of assigned spaces
      1. students _____
      2. faculty _____
      3. staff _____
      4. visitors _____
      5. total _____
   c. Total parking structure spaces _____

3. ON-STREET (CURB) SPACES
   a. Number of unassigned spaces _____
   b. Number of assigned spaces
      1. students _____
      2. faculty _____
      3. staff _____
      4. visitors _____
      5. total _____
   c. Total on-street (curb) spaces _____

4. TOTAL PARKING SPACES _____

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C

PROGRAM PLANNING. . . . . .

THE PROGRAM

PLANNING SECTION

IS NOT COMPLETE

AT THIS TIME. IT

WILL BE MADE AVAILABLE

AT A LATER DATE.

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PLANNING CRITERIA. D1

PLANNING CRITERIA

During recent years, various agencies of the State of Colorado have developed a number of criteria to be used as guidelines in planning facilities for institutions of higher education in the state. This section of the Planning Manual is made up of a collection of such criteria. For convenient reference, the criteria are divided into the following major categories:

1. Enrollment Projections
2. Faculty Projections
3. Facility Planning Criteria

In some instances, criteria may also be found in the section titled DEFINITIONS/ ABBREVIATIONS. As an example, the definition of an FTE student establishes the "standard" for his academic load.

ENROLLMENTS/MAXIMUM

The following table sets forth enrollment maximums which shall serve to determine facility requirements at the ultimate growth of each institution. In several instances, a maximum enrollment range is established for an institution. For planning purposes, the largest figure shall be used.

Ultimate Size Targets, Colorado Public Institutions

	Fall 1970 Headcount (Actual)	Size Targets	
		Fall Headcount	Daytime FTE
CSU	16,324	**20,600**	**19,775**
CU-Boulder	21,482	22,500	20,500[1]
CU-Colo. Sprgs.	2,312	12,500	8,000[2]
CU-Denver	6,987	16,000	5,600[3]
CSM	1,727	3,000	3,300
Ft. Lewis	2,122	4,000	4,000[4]
Adams	2,995	4,200	3,780
Metro	7,212	25,000	16,000
Southern	6,130	11,000	10,000
UNC	10,547	12,900	12,000
Western	3,144	3,300	3,300
Arapahoe	2,155	4,215	2,625
CCD-Central	608	10,000	5,000
CCD-North	3,133	10,000	6,000
CCD-West	1,770	10,000	6,000
CCD Total	(5,511)	(30,000)	(17,000)
El Paso	2,963	10,000	6,000
Lamar	587	1,250	1,250
Otero	723	1,570	1,100
Trinidad	1,559	2,500	2,000
Aims	2,209	7,000	4,500[5]
Colo. Mtn.-East	286	800	750
Colo. Mtn.-West	386	1,500	1,450
Mesa	2,413	5,400	3,500
Morgan	458	1,000	800
Northeastern	1,862	3,000	2,400
Rangely	400	1,000	900
Total	102,494		

[1]Subject to further review with the University of Colorado.
[2]Tentative.
[3]Tentative; subject to further review with the University of Colorado.
[4]Master planning may provide for a final phase to 5,000.
[5]Master planning may provide for a final phase to 6,000.

ENROLLMENT PROJECTIONS

The following table sets forth the latest enrollment projections which the Commission has made for each of the colleges and universities. This table will be up-dated periodically and made available to each institution for insertion into this booklet. The following projections are preliminary at the time of this printing but it is expected that official statistics will be available within a matter of several weeks.

PRELIMINARY

COLORADO HIGHER EDUCATION FALL HEADCOUNT ENROLLMENTS: 1970-72 ACTUAL AND THREE PROJECTIONS TO 1980

	ACTUAL			1969 PROJECTIONS[a]		JUNE 71 PROJECTIONS[b]		JAN 73 DRAFT PROJECTIONS	
	1970	1971	1972	1975	1980	1975	1980	1975	1980
ADAMS	2978	2854	2812	3850	4200	3850	4200	3000	3750
CSM	1727	1699	1688	2117	2702	2159	2578	2000	2250
CSU	16347	17194	16653	20535	25591	18150	20180	17400	20000
FLC	2078	2213	2506	2678	3780	3075	4037	2800	3550
MSC	7212	8202	8722	15137	23280	12600	19015	9100	10675
SCSC	6385	6070	5641	8350	10000	8350	10000	5800	7150
CU-Boulder	20658	21171	22053	23357	27223	21795	22000	21500	21000
-Colo Spgs	2312	2251	2603	2930	3447	3500	5000	3500	5000
-Denver	6828	7141	6871	7762	9063	9400	13000	8600	10000
UNC	10547	10756	10692	12396	15000	11875	12750	11000	12300
WSC	3144	3194	3156	3500	4000	3300	3300	3000	3000
(COLL & UNIV SUB-TOTAL)	(80216)	(82745)	(83397)			(96[illegible]4)	(116060)	(87700)	(98675)
ARAPAHOE	2207	2366	2377	3968	4215	2884	4031	3000	3600
CCD-TOTAL	5846	7284	8548	14108	17784	14108	17784	10000	15000
EL PASO	2693	3185	3549	4182	5490	5228	6863	4000	4200
LAMAR	587	748	701	758	946	758	946	700	750
OTERO	901	911	847	1231	1497	1268	1544	1000	1125
TRINIDAD	1559	1398	1407	1873	2068	1607	1737	1500	1500
(2-YR STATE SUB-TOTAL)	(13793)	(15892)	(17429)	(26120)	(32000)	(25853)	(32905)	(20200)	(26175)
AIMS	3835	3483	3288	3671	4686	3800	4850	3750	4500
CMC-TOTAL	672	729	902	1709	2100	1185	144[illegible]	1300	1800
MESA	3056	3210	3355	3975	4600	3975	4600	4150	4300
MORGAN	458	613	713	750	1000	750	1000	750	1000
NORTHEASTERN	1862	1898	1988	2616	2952	2063	2330	2000	2250
RANGELY	400	309	215	731	1049	731	1012	200	225
(2-YR DIST SUB-TOTAL)	(10283)	(10242)	(10461)	(13452)	(16387)	(12504)	(15233)	(12150)	(14075)
COLORADO PUBLIC TOTAL	104292	108879	111287	142184	176673	136411	164198	120050	138925
5 PRIVATES	14115	14076	13976			14930	15355	14105	14530
COLORADO GRAND TOTAL	118407	122955	125263			151341	179553	134155	153455

NOTES: [a]Source: Patterns of Progress (CCHE, Jan. '70)
[b]Source: Planning for the 1970's (CCHE, Oct. '71)

CCHE/NBD 1/23/73

FACULTY PROJECTIONS

In estimating numbers of faculty required for an institution's programs, the Commission employs a technique based on variable student/faculty ratios by discipline and by level of instruction. An individual institution would not necessarily be expected to employ this system in determining faculty requirements, but overall faculty projections made by the institution will be tested by this system, in the review process. The system currently in use is described in the Commission publication, Budget Recommendations, 1973-74. Specific components of the system are under review by Commission and institution staff representatives. Pending the promulgation of approved Commission procedures, specific techniques to be employed by an institution in developing faculty projections for master planning should be determined through institution/Commission discussion before faculty projections are initiated.

CLASSROOM AND CLASSROOM SERVICE SPACE

Included in this category of space are general classrooms, seminar rooms, and teaching auditoriums equipped with chairs which render the rooms capable of accommodating lecture or discussion type classes, seminars, or meetings. Also included is accompanying service space such as storage rooms, projection booths, and the like.

The Commission employs an overall guideline for classrooms and related service space which is based on an acceptable level of utilization of rooms and of the seating capacity (student stations) of rooms, and on an assumed average amount of space per student station. The guideline which the Commission uses is 0.75 assignable square feet per student-station-period occupied (student contact hour).

A student-station-period occupied is one student seated in a classroom chair for one hour. The guideline assumes that classrooms will be utilized an average of 30 hours per week and will be filled to 67 per cent of capacity during the hours they are used. Also, the guideline assumes an average of 15 assignable square feet per student station (including service space).

To illustrate the application of the guideline, assume that an institution has available only one classroom with 1,500 square feet and 100 student stations. If the institution uses the room 30 hours per week and fills it to 67 per cent of capacity during those hours, there would be 2,010 student-station-periods of occupancy. The 1,500 square feet divided by the 2,010 would produce 0.75 square feet per SSPO.

This guideline is based on daytime occupancy (through 5:00 p.m.). Needed classroom facilities should normally be based on day FTE students since students enrolled in the evening may be accommodated in facilities required for the daytime program.

The above-referenced guideline is used by the Commission for purposes of making general projections of space requirements on a state-wide basis. This guideline should not be followed literally in the process of accomplishing detailed institutional master and program planning. It is, however, intended to be a minimum average expectation (individual rooms might be above or below this guideline, depending on circumstances). In applying this and other similar generalized guidelines contained in this section, deviations beyond the guideline can be made insofar as specific projects are concerned so long as campus-wide data are available which show that the overall campus average is kept within the guideline figure. For example, an average classroom utilization of 27 hours per week for a particular building would be acceptable if classrooms in other buildings are used enough in excess of 30 hours per week to make the overall average 30 hours or more.

It should be expected that station sizes will vary somewhat according to the size of the classroom and the type of furniture included in it. Also individual departments and institutions might achieve greater utilization than the above guideline requires. Guidelines as to station sizes which are contained in the following table should be followed by the institution in doing master and program planning. In addition, it is expected that average utilization rates of at least 30 hours per week for rooms filled to at least 67 per cent of capacity will be used for planning purposes.

No. of Stations	ASF Required for Station	ASF Required for Circulation	Total ASF Required for Room
1. Tablet Armchairs, 2 Aisles, No Rear Aisle			
16-25	8	190	320-390
26-35	8	195	390-475
36-45	8	200	475-560
46-55	8	205	560-645
56-70	8	210	645-770
71-90	8	220	770-940
2. Tablet Armchairs, 3 Aisles, 1 Rear Aisle			
91-125	8	470	1,200-1,470
126-175	8	495	1,470-1,895
176-225	8	520	1,895-2,320
3. Rows of Tables and Chairs, 2 Aisles			
16-25	12	250	440-550
26-35	12	260	550-680
36-45	12	270	680-810
46-55	12	280	810-940
4. Lecture Auditoriums			
176-225	8	520	1,895-2,320
226-375	8	530	2,320-3,530
376-500	8	600	3,530-4,600
501-1,000	8	600	4,600-8,600
1,001-1,500	7.8	600	8,600-12,300
5. Seminar-Conference Rooms			
-10	20	--	-200
11-20	20	--	200-400
21-30	18	--	400-540

6. Unconventional Rooms

In those cases where an institution is planning unconventional classrooms to meet the requirements of unusual teaching techniques, it will be necessary to explain the techniques, describe the uses made of the rooms, establish the space requirements for each occupant, etc.

For ease in applying the above guidelines in the preparation of Table B3-c, the following measurements are presented which include circulation area as part of the station size (only classroom sizes of 55 and under are presented):

1. Tablet Armchairs, 2 Aisles, No Rear Aisle

No. Sta.	ASF per Sta.	Total ASF	No. Sta.	ASF per Sta.	Total ASF
16	19.9	318	36	13.6	488
17	19.2	326	37	13.4	496
18	18.6	334	38	13.3	504
19	18.0	342	39	13.1	512
20	17.5	350	40	13.0	520
21	17.1	358	41	12.9	528
22	16.6	366	42	12.8	536
23	16.3	374	43	12.7	544
24	15.9	382	44	12.6	552
25	15.6	390	45	12.4	560
26	15.5	403	46	12.5	573
27	15.2	411	47	12.4	581
28	15.0	419	48	12.3	589
29	14.7	427	49	12.2	597
30	14.5	435	50	12.1	605
31	14.3	443	51	12.0	613
32	14.1	451	52	11.9	621
33	13.9	459	53	11.9	629
34	13.7	467	54	11.8	637
35	13.6	475	55	11.7	645

3. Rows of Tables and Chairs, 2 Aisles

No. Sta.	ASF per Sta.	Total ASF	No. Sta.	ASF per Sta.	Total ASF
16	27.6	442	36	19.5	702
17	26.7	454	37	19.3	714
18	25.9	466	38	19.1	726
19	25.2	478	39	18.9	738
20	24.5	490	40	18.8	750
21	23.9	502	41	18.6	762
22	23.4	514	42	18.4	774
23	22.9	526	43	18.3	786
24	22.4	538	44	18.1	798
25	22.0	550	45	18.0	810
26	22.0	572	46	18.1	832
27	21.6	584	47	18.0	844
28	21.3	596	48	17.8	856
29	21.0	608	49	17.7	868
30	20.7	620	50	17.6	880
31	20.4	632	51	17.5	892
32	20.1	644	52	17.4	904
33	19.9	656	53	17.3	916
34	19.7	668	54	17.2	928
35	19.4	680	55	17.1	940

INSTRUCTIONAL LABORATORY AND RELATED SERVICE SPACE

Included in this category of space are regularly scheduled laboratories which are organized and equipped for special types of instruction and which are not readily adaptable to general use. Also included is accompanying service space such as storage rooms, make-up rooms, etc.

It is expected that instructional laboratories in the technical/occupational areas will be used at least an average of 30 hours per week and that they will be filled to at least 80 per cent of capacity during the hours they are used. Laboratories in other areas should be planned for an average use of at least 20 hours per week and at least an 80 per cent station occupancy when rooms are in use. Individual laboratories might be planned for more or less utilization, of course, depending on such factors as the number of contact hours per week laboratory classes are scheduled, the number of sections of laboratory classes to be scheduled, the amount of make-up or preparatory time which is required, etc. The guideline of 20 or 30 hours per week room use and 80 per cent station occupancy is based on daytime use as explained for classrooms.

The following table presents guidelines relative to teaching laboratory utilization levels, station sizes, service space requirements, and the like. It is anticipated that these guidelines will change with time as changes occur in instructional programming and as more is learned about appropriate utilization rates for various types of laboratories.

The guidelines as to station sizes which are presented on the following pages are believed to be accurate enough for master planning purposes. However, when the guidelines are being applied at the program planning stage they should be tested very carefully against specific academic requirements. At this point it is recommended that line drawings be prepared which show room layouts, etc. Such layouts, accompanied by appropriate descriptions of academic requirements, should be presented as explanation of any deviations from the guidelines which might be necessary.

It will be noted that reference is made in the teaching laboratory guidelines to "large departments" and "small departments." Size of department in this instance should be determined by the amounts of special purpose primary teaching space required by the department. The breaking point should be at 7,000 assignable square feet of primary teaching space.

	Area per Student Station	Service Space as a % of Lab Space		Total Area per Station		Weekly Room Contact Hours Expected	% of Station Utilization[a]	Sq. Ft. SSPO[b]	
		Large Dept.	Small Dept.	Large Dept.	Small Dept.			Large Dept.	Small Dept.
Agricultural Sciences:									
Agronomy									
Soils	40	- 28 -		- 51.2 -		20	80	- 3.20 -	
Soil Chemistry, Physics, Microbiology	45	- 28 -		- 57.6 -		20	80	- 3.60 -	
Field Crops, Weed Control	45	- 28 -		- 57.6 -		20	80	- 3.60 -	
Animal Husbandry									
Chemical Analysis	40	- 24 -		- 49.6 -		20	80	- 3.10 -	
Feeding and Care, Meat Technology	80	- 24 -		- 99.2 -		20	80	- 6.20 -	
Breeding, Physiology, Nutrition	50	- 24 -		- 62.0 -		20	80	- 3.88 -	
Dairy Husbandry									
Chemical Analysis	40	- 30 -		- 52.0 -		20	80	- 3.25 -	
Feeding and Care, Milking Methods	80	- 30 -		- 104.0 -		20	80	- 6.50 -	
Breeding, Physiology, Nutrition	50	- 30 -		- 65.0 -		20	80	- 4.06 -	
Forestry and Range Management									
All Labs	35	- 30 -		- 45.5 -		20	80	- 2.84 -	
Horticulture									
General, Lawn Management	30	- 24 -		- 37.2 -		20	80	- 2.33 -	
Flower Arrangement, Taxonomy	45	- 24 -		- 55.8 -		20	80	- 3.49 -	
Germination and Propagation	45	- 24 -		- 55.8 -		20	80	- 3.49 -	
Poultry Husbandry									
Genetics	35	- 30 -		- 45.5 -		20	80	- 2.84 -	
Nutrition, Physiology	45	- 30 -		- 58.5 -		20	80	- 3.66 -	
Arts and Crafts:									
Architecture									
Elementary Design, Projections	35	15	30	40.3	45.5	20	80	2.52	2.84
Drawing and Rendering	35	15	30	40.3	45.5	20	80	2.52	2.84
Furniture Design, Interiors	40	15	30	46.0	52.0	20	80	2.88	3.25
Advanced Design, Landscape	50	15	30	57.5	65.0	20	80	3.59	4.06
Commercial Arts									
Introductory Advertising Design	35	- 19 -		- 41.7 -		20	80	- 2.61 -	
Advanced Advertising Design	45	- 19 -		- 53.6 -		20	80	- 3.35 -	
Fine Arts									
Jewelry & Metalsmith, Drawing, Design	35	- 18 -		45.5	41.3	20	80	2.84	2.58
Figure Drawing, Painting, Photography, Cinematography	45	- 18 -		55.8	53.1	20	80	3.49	3.32
Sculpture, Ceramics, Pottery, Crafts, Three-dimensional Applied Design, Printmaking	50	- 18 -		62.0	59.0	20	80	3.88	3.69
Individual Studios	75	- 18 -		93.0	88.5	20	80	5.81	5.53
Graphics, Drafting									
Engineering Drawing	30	10	21	33.0	36.3	20	80	2.06	2.27
Introductory Drafting, Design	35	10	21	38.5	42.4	20	80	2.41	2.65
Advanced Drafting, Graphics	40	10	21	44.0	48.4	20	80	2.75	3.03

	Area per Student Station	Service Space as a % of Lab Space		Total Area per Station		Weekly Room Contact Hours Expected	% of Station Utilization[a]	Sq. Ft. SSPO[b]	
		Large Dept.	Small Dept.	Large Dept.	Small Dept.			Large Dept.	Small Dept.
Arts and Crafts (continued):									
Music									
Instrumental and Choral Groups	15	21	29	18.2	19.4	20	80	1.14	1.21
Piano Laboratories	45	21	29	54.5	58.1	20	80	3.41	3.63
Biological Sciences:									
Anatomy and Histology									
Histology, Developmental Anatomy	35	28	20	44.8	42.0	20	80	2.80	2.63
Microscopic Anatomy, Vertebrate Morphology	45	28	20	57.6	54.0	20	80	3.60	3.38
Gross Anatomy	60	28	20	76.8	72.0	20	80	4.80	4.50
All Graduate Laboratories	60	28	20	76.8	72.0	20	80	4.80	4.50
Bateriology									
All Undergraduate Laboratories	45	- 32 -		- 59.4 -		20	80	- 3.71 -	
All Graduate Laboratories	60	- 32 -		- 79.2 -		20	80	- 4.95 -	
Biochemistry									
All Undergraduate	50	- 24 -		- 62.0 -		20	80	- 3.88 -	
All Graduate	60	- 24 -		- 74.4 -		20	80	- 4.65 -	
Biological Science									
General, Introductory	35	- 24 -		- 43.4 -		20	80	- 2.71 -	
Biophysics									
All Undergraduate	45	- 24 -		- 55.8 -		20	80	- 3.49 -	
All Graduate	60	- 24 -		- 74.4 -		20	80	- 4.65 -	
Botany									
Elementary, Plant Anatomy, Taxonomy	35	29	21	45.2	42.4	20	80	2.83	2.65
Morphology, Mycology	45	29	21	58.1	54.5	20	80	3.63	3.41
Microtechnique, Plant Physiology	45	29	21	58.1	54.5	20	80	3.63	3.41
Pathology	60	29	21	77.4	72.6	20	80	4.84	4.54
All Graduate	60	29	21	77.4	72.6	20	80	4.84	4.54
Entomology									
Elementary, Introductory	35	- 24 -		- 43.4 -		20	80	- 2.71 -	
All Other Undergraduate	45	- 24 -		- 55.8 -		20	80	- 3.49 -	
All Graduate	60	- 24 -		- 74.4 -		20	80	- 4.65 -	
Genetics									
Elementary	35	- 24 -		- 45.5 -		20	80	- 2.71 -	
All Other Undergraduate	45	- 24 -		- 55.8 -		20	80	- 3.49 -	
All Graduate	60	- 24 -		- 74.4 -		20	80	- 4.65 -	
Microbiology									
All Undergraduate	45	- 24 -		- 55.8 -		20	80	- 3.49 -	
All Graduate	60	- 24 -		- 74.4 -		20	80	- 4.65 -	
Pathology									
All Undergraduate	45	- 24 -		- 55.8 -		20	80	- 3.49 -	
All Graduate	60	- 24 -		- 74.4 -		20	80	- 4.65 -	

	Area per Student Station	Service Space as a % of Lab Space		Total Area per Station		Weekly Room Contact Hours Expected	% of Station Utilization[a]	Sq. Ft. SSPO[b]	
		Large Dept.	Small Dept.	Large Dept.	Small Dept.			Large Dept.	Small Dept.
Biological Sciences (continued):									
Physiology									
Pharmacology, Chemical Physiology	45	- 24 -		- 55.8 -		20	80	- 3.49 -	
Experimental, Animal Physiology	100	- 24 -		- 124.0 -		20	80	- 7.75 -	
Plant Pathology									
Elementary, General	35	- 24 -		- 45.5 -		20	80	- 2.71 -	
All Other Undergraduate	45	- 24 -		- 55.8 -		20	80	- 3.49 -	
All Graduate	60	- 24 -		- 74.4 -		20	80	- 4.65 -	
Zoology:									
Introductory, Elementary, Comparative Anatomy, Physiology	35	25	16	43.8	40.6	20	80	27.38	25.38
Vertebrate, Invertebrate, Cytology, Embryology, Enzymology, Parasitology, Histology, Morphology, Ornithography, Ecology, Limnology, Taxonomy	45	25	16	56.3	52.2	20	80	35.19	32.63
Business:									
Accounting									
General Accounting	25	- 0 -		- 25.0 -		20	80	- 1.56 -	
Management									
Time and Motion Analysis	40	- 15 -		- 46.0 -		20	80	- 2.88 -	
Secretarial									
Typewriter, Calculator	25	- 12 -		- 28.0 -		20	80	- 1.75 -	
Combined Typing and Shorthand	30	- 12 -		- 33.6 -		20	80	- 2.10 -	
Statistics									
Elementary	25	- 9 -		- 27.3 -		20	80	- 1.71 -	
Intermediate, Advanced	30	- 9 -		- 32.7 -		20	80	- 2.04 -	
Engineering Sciences:									
Aeronautical									
All Laboratories	150	- 18 -		- 177.0 -		20	80	- 11.06 -	
Agricultural									
Electricity	45	- 18 -		- 53.1 -		20	80	- 3.32 -	
Soil and Water	60	- 18 -		- 70.8 -		20	80	- 4.43 -	
Structures	85	- 18 -		- 100.3 -		20	80	- 6.27 -	
Farm Metal Work, Shop Work	115	- 18 -		- 135.7 -		30	80	- 5.65 -	
Farm Machinery, Equipment	200	- 18 -		- 236.0 -		30	80	- 9.83 -	
Chemical									
Instrumentation	30	- 18 -		- 35.4 -		20	80	- 2.21 -	
Physical Chemistry	60	- 18 -		- 70.8 -		20	80	- 4.43 -	
Unit Operations	150	- 18 -		- 177.0 -		20	80	- 11.06 -	
Civil									
Photogrammetry, Surveying	50	- 18 -		- 59.0 -		20	80	- 3.69 -	
Soils	60	- 18 -		- 70.8 -		20	80	- 4.43 -	
Hydraulics, Concrete	88	- 18 -		- 103.8 -		20	80	- 6.49 -	
Strength of Materials	150	- 18 -		- 177.0 -		20	80	- 11.06 -	
Electrical									
Measurements, Control Systems	45	- 18 -		- 53.1 -		20	80	- 3.32 -	
Electronics	45	- 18 -		- 53.1 -		20	80	- 3.32 -	
Circuits	75	- 18 -		- 88.5 -		20	80	- 5.53 -	
Machines, Power Engineering	125	- 18 -		- 147.5 -		20	80	- 9.22 -	

	Area per Student Station	Service Space as a % of Lab Space		Total Area per Station		Weekly Room Contact Hours Expected	% of Station Utilization[a]	Sq. Ft. SSPO[b]	
		Large Dept.	Small Dept.	Large Dept.	Small Dept.			Large Dept.	Small Dept.
Engineering Sciences (Continued):									
Geophysical									
Electricity, Magnetism	45	- 18 -		- 53.1 -		20	80	- 3.32 -	
Circuitry, Electronics	45	- 18 -		- 53.1 -		20	80	- 3.32 -	
Seismology	50	- 18 -		- 59.0 -		20	80	- 3.69 -	
Prospecting, Well Logging	100	- 18 -		- 118.0 -		20	80	- 7.38 -	
Industrial									
Processes, Time and Motion	65	- 18 -		- 76.7 -		20	80	- 4.79 -	
Mechanical									
Machine Shop, Machines	50	- 18 -		- 59.0 -		20	80	- 3.69 -	
Mechanical, Thermodynamics	200	- 18 -		- 236.0 -		20	80	- 14.75 -	
Manufacturing Processes	200	- 18 -		- 236.0 -		20	80	- 14.75 -	
Metallurgical									
Microscopy	40	- 18 -		- 47.2 -		20	80	- 2.95 -	
Physical Metallurgy	70	- 18 -		- 82.6 -		20	80	- 5.16 -	
Spectrography	120	- 18 -		- 141.6 -		20	80	- 8.85 -	
Mining									
Unit Operations, Production	125	- 18 -		- 147.5 -		20	80	- 9.22 -	
Petroleum									
Refining Processes	100	- 18 -		- 118.0 -		20	80	- 7.38 -	
Unit Operations, Production	150	- 18 -		- 177.0 -		20	80	- 11.06 -	
Home Economics:									
Clothing and Textiles									
Materials	25	- 17 -		- 29.3 -		20	80	- 1.83 -	
Textile Chemistry	40	- 17 -		- 46.8 -		20	80	- 2.93 -	
Pattern Making, Sewing	45	- 17 -		- 52.7 -		20	80	- 3.29 -	
Design, Costuming	45	- 17 -		- 52.7 -		20	80	- 3.29 -	
General Home Economics									
All Lower Division	40	- 27 -		- 50.8 -		20	80	- 3.18 -	
All Upper Division	50	- 27 -		- 63.5 -		20	80	- 3.97 -	
Family and Child Development									
All Lower Division	40	- 28 -		- 51.2 -		20	80	- 3.20 -	
All Upper Division	50	- 28 -		- 64.0 -		20	80	- 4.00 -	
Foods and Nutrition									
Taste Panel	25	- 25 -		- 31.3 -		20	80	- 1.96 -	
Elementary Nutrition, Food Chemistry	40	- 25 -		- 50.0 -		20	80	- 3.13 -	
Advanced Nutrition	50	- 25 -		- 62.5 -		20	80	- 3.91 -	
Food Preparation and Analysis	60	- 25 -		- 75.0 -		20	80	- 4.69 -	
Physical Sciences:									
Astrogeophysics									
All Lower Division	40	23	24	49.2	49.6	20	80	3.08	3.10
All Upper Division	45	23	24	55.4	55.8	20	80	3.46	3.49
All Graduate	60	23	24	73.8	74.4	20	80	4.61	4.65

	Area per Student Station	Service Space as a % of Lab Space		Total Area per Station		Weekly Room Contact Hours Expected	% of Station Utilization[a]	Sq. Ft. SSPO[b]	
		Large Dept.	Small Dept.	Large Dept.	Small Dept.			Large Dept.	Small Dept.
Physical Sciences (continued):									
Astronomy									
All Lower	25	23	24	30.8	31.0	20	80	1.93	1.94
All Upper	50	23	24	61.5	62.0	20	80	3.84	3.88
All Graduate	60	23	24	73.8	74.4	20	80	4.61	4.65
Astrophysics									
All Undergraduate	50	23	24	61.5	62.0	20	80	3.84	3.88
All Graduate	60	23	24	73.8	74.4	20	80	4.61	4.65
Atmospheric Science									
All Lower	40	23	24	49.2	49.6	20	80	3.08	3.10
All Upper	50	23	24	61.5	62.0	20	80	3.84	3.88
All Graduate	60	23	24	73.8	74.4	20	80	4.61	4.65
Chemistry									
General, Elementary	40	26	24	50.4	49.6	20	80	3.15	3.10
Beginning Quantitative and Qualitative	45	26	24	56.7	55.8	20	80	3.54	3.49
Beginning Organic	45	26	24	56.7	55.8	20	80	3.54	3.49
Advanced Quantitative and Qualitative	50	26	24	63.0	62.0	20	80	3.94	3.88
Advanced Organic, Biochemistry	50	26	24	63.0	62.0	20	80	3.94	3.88
Physical Chemistry	60	26	24	75.6	74.4	20	80	4.73	4.65
All Graduate	60	26	24	75.6	74.4	20	80	4.73	4.65
Engineering Physics									
All Lower Division	40	23	24	49.2	49.6	20	80	3.08	3.10
All Upper Division	45	23	24	55.4	55.8	20	80	3.46	3.49
All Graduate	60	23	24	73.8	74.4	20	80	4.61	4.65
Geology									
Elementary, General	40	14	23	45.6	49.2	20	80	2.85	3.08
Crystallography, Mineralogy, Paleontology	40	14	23	45.6	49.2	20	80	2.85	3.08
Stratigraphy, Petrology, Petrography	50	14	23	57.0	61.5	20	80	3.56	3.84
Mapping, Cartography, Lithology	50	14	23	57.0	61.5	20	80	3.56	3.84
All Graduate Laboratories	60	14	23	68.4	73.8	20	80	4.28	4.61
General Physical Science									
General Subjects	35	23	24	43.1	43.4	20	80	2.69	2.71
Meterology									
All Lower	40	23	24	49.2	49.6	20	80	3.08	3.10
All Upper	50	23	24	61.5	62.0	20	80	3.84	3.88
All Graduate	60	23	24	73.8	74.4	20	80	4.61	4.65
Physics									
General, Elementary	40	24	26	49.6	50.4	20	80	3.10	3.15
Intermediate, Electronics, Heat	45	24	26	55.8	56.7	20	80	3.49	3.54
Mechanics, Optics	45	24	26	55 8	56.7	20	80	3.49	3.54
Atomic Physics	60	24	26	74.4	75.6	20	80	4.65	4.73

	Area per Student Station	Service Space as a % of Lab Space		Total Area per Station		Weekly Room Contact Hours Expected	% of Station Utilization[a]	Sq. Ft. SSPO[b]	
		Large Dept.	Small Dept.	Large Dept.	Small Dept.			Large Dept.	Small Dept.
Social Sciences:									
Anthropology--Archeology									
Linguistics	25	- 18 -		- 29.5 -		20	80	- 1.84 -	
Archeological Specimens	35	- 18 -		- 41.3 -		20	80	- 2.58 -	
Elementary Physical Anthropology	35	- 18 -		- 41.3 -		20	80	- 2.58 -	
Advanced Physical Anthropology	45	- 18 -		- 53.1 -		20	80	- 3.32 -	
Geography									
Physical Geography	35	- 15 -		- 40.3 -		20	80	- 2.52 -	
Cartography	50	- 15 -		- 57.5 -		20	80	- 3.59 -	
Library Science									
Library Methods	50	- 18 -		- 59.0 -		20	80	- 3.69 -	
Psychology									
Elementary Experimental	40	- 19 -		- 47.6 -		20	80	- 2.98 -	
Advanced Experimental	45	- 19 -		- 53.6 -		20	80	- 3.35 -	
Learning, Perception	45	- 19 -		- 53.6 -		20	80	- 3.35 -	
Physiological Psychology	50	- 19 -		- 59.5 -		20	80	- 3.72 -	
Testing	75	- 19 -		- 89.3 -		20	80	- 5.58 -	
All Graduate	60	- 19 -		- 71.4 -		20	80	- 4.46 -	
Sociology									
Observation Booth	12	- 27 -		- 15.2 -		20	80	- 0.95 -	
Interview and Testing Booth	75	- 27 -		- 95.3 -		20	80	- 5.96 -	
Mathematical Sciences:									
Computer Science									
Programming	20	- 19 -		- 23.8 -		20	80	- 1.49 -	
Keypunch	25	- 19 -		- 29.8 -		20	80	- 1.86 -	
Remote Terminal (Teletype or Typewriter)	25	- 19 -		- 29.8 -		20	80	- 1.86 -	
Remote Terminal (Complex)	60	- 19 -		- 71.4 -		20	80	- 4.46 -	
Statistics									
Elementary	25	- 9 -		- 27.3 -		20	80	- 1.71 -	
Intermediate, Advanced	30	- 9 -		- 32.7 -		20	80	- 2.04 -	
Occupational Studies:									
Beauty Care									
Barbering	60	- 20 -		- 72.0 -		30	80	- 3.00 -	
Cosmetology	90	- 20 -		- 108.0 -		30	80	- 4.50 -	
Health Care									
Dental Assistant	50	- 24 -		- 62.0 -		30	80	- 2.58 -	
Dental Technology	50	- 24 -		- 62.0 -		30	80	- 2.58 -	
Nursing Demonstration Ward	100	- 24 -		- 124.0 -		30	80	- 5.17 -	
Police Science									
Crime Research	40	- 20 -		- 48.0 -		30	80	- 2.00 -	
Mock Courtroom	25	- 20 -		- 30.0 -		30	80	- 1.25 -	

	Area per Student Station	Service Space as a % of Lab Space		Total Area per Station		Weekly Room Contact Hours Expected	% of Station Utilization[a]	Sq. Ft. SSPO[b]	
		Large Dept.	Small Dept.	Large Dept.	Small Dept.			Large Dept.	Small Dept.
Technological Studies:									
Aerospace Tech.	175	- 20 -		- 210.0 -		30	80	- 8.75 -	
Appliance Repair	45	- 20 -		- 54.0 -		30	80	- 2.25 -	
Auto Repair	200	- 20 -		- 240.0 -		30	80	- 10.00 -	
Building Trades	175	- 20 -		- 210.0 -		30	80	- 8.75 -	
Chemical Tech.	45	26	24	56.7	55.8	30	80	2.36	2.33
Controlls and Servomechanisms	45	- 18 -		- 53.1 -		30	80	- 2.21 -	
Electro-Mechanical	65	- 20 -		- 78.0 -		30	80	- 3.25 -	
Electronics	40	- 20 -		- 48.0 -		30	80	- 2.00 -	
Machine Shop (Large Machines)	130	- 20 -		- 156.0 -		30	80	- 6.50 -	
Machine Shop (Small Machines)	50	- 20 -		- 60.0 -		30	80	- 2.50 -	
Printing and Lithography	80	- 20 -		- 96.0 -		30	80	- 4.00 -	
Refrigeration, Air Conditioning	130	- 20 -		- 156.0 -		30	80	- 6.50 -	
Sheet Metal	130	- 20 -		- 156.0 -		30	80	- 6.50 -	
Welding (Gas or Arc)	80	- 20 -		- 96.0 -		30	80	- 4.00 -	
Welding (Both in One Station)	150	- 20 -		- 180.0 -		30	80	- 7.50 -	

[a]Calculated on the basis of those hours when rooms are in use.

[b]Student station periods of occupancy per week.

PHYSICAL EDUCATION FACILITIES AND RELATED SERVICE SPACE

Included in this category are gym playing floors, swimming pools, handball courts, and other similar indoor physical education facilities. Also included is related service space such as equipment rooms, shower rooms, locker rooms, and the like.

The following criteria should be used for planning individual physical education spaces:

Space Type	ASF
Basketball courts:	
Practice court	4,370
Competition court	6,240
Combination of 2 practice courts and 1 competition court	8,735
Baseball diamond (infield for fieldhouse)	16,900
Football cage (fieldhouse)	19,260
Indoor track ($\frac{1}{4}$ mile, 6 lanes)	33,000
Handball (4-wall court)	1,060
Handball (1-wall court)	680
Squash (doubles court)	1,125
Squash (singles court)	595
Shuffleboard	625
Volley ball (per court)	3,025
Wrestling (per mat)	1,155
Boxing:	
Ring (1)	900
Punching bag (per bag)	15
Punching bag (heavy-per bag)	35
Pool (Olympic standards-6 lanes)	7,130
Exercise room (per person)	50
Rifle range (per point or firing position)	400
Pistol range (per point or firing position)	320
Fencing (per strip)	325
Spectator seating (foldable-per seat)	2.5
Lockers (per locker):	
Varsity rooms	10
General locker room	6.75
Tote basket	0.50
Showers (per head, gang showers)	16
Shower-dressing stall for women (per unit)	24
Ticket booth	25
First aid, training, physical therapy room	750

With the exception of self-contained facilities; e.g., handball and squash courts, the criteria shown above all include allowances for buffer zones or circulation space around actual playing or competition areas. Clearly there is room for variation from these figures since competition areas need not be regulation size or single units may be combined with resulting savings in circulation space needs.

The CCHE uses an overall guideline of 10 ASF per student-station-period of occupancy for physical education facilities. This would provide 160 square feet per student station (including service space), an average of 20 hours per week room use, and an average of 80 per cent station occupancy when rooms are in use. This guideline would assume that a small institution with a variety of physical education courses would need to schedule physical education spaces for several different types of activities in order to achieve an appropriate level of utilization. For example, a gym playing floor might be scheduled for activities such as basketball, volleyball, dancing, weight lifting, wrestling, etc. As the institution grows, and more physical education classes are taught, there might be justification for specialized facilities to accommodate the various activities.

The guideline of 10 ASF per student-station-period of occupancy is based on daytime use as explained for classrooms.

The 10 ASF guideline is believed to be appropriate for master planning purposes but, for program planning, a much more incisive analysis should be made. At the program planning stage, with class-by-class scheduling, the established need likely will be less or greater than 10 ASF per SSPO depending on the specific nature and magnitude of the physical education program.

OTHER TEACHING FACILITIES AND RELATED SERVICE SPACE

This category includes such facilities as music practice rooms, music studios, and rooms which are designed and equipped for use by students of special audio-visual or other programmed instructional equipment on an individual basis for self-instruction purposes. Also included would be related service space such as instructional equipment storage rooms, control rooms, etc.

Following are guidelines which have been developed for certain spaces in this category:

Music Practice Rooms	80 ASF per room, room use of 48 hours per week
Language Laboratories	25 ASF per station plus 4.25 ASF per station for service (17 per cent)
Audio-Tutorial Carrels	30 ASF per station plus 4.5 ASF per station for service (15 per cent)
Graduate Student Art Studio	75 ASF per studio
Advanced Architectural Design Studio	90 ASF per station

Although the Commission has used a factor of 1.5 ASF per FTE student for projecting needs for this type of space, it is necessary that the institution, in doing master or program planning, make a more precise definition of need. For example, the number of music practice rooms should be calculated on the basis of such factors as the number of students projected in courses which require individual practice, the estimated average number of hours a student will practice, the hours per week the practice rooms will be scheduled, and the ASF per practice room.

INSTRUCTIONAL FACULTY OFFICES AND RELATED SECRETARIAL, CLERICAL, AND OFFICE SERVICE SPACE

Included here are offices for resident instructional faculty, academic deans, instructional department or division heads, secretarial and clerical personnel of instructional departments, and related office service space such as reception rooms, conference rooms, file rooms, and the like.

Faculty projections for purposes of determining office space requirements might be made on the basis of both day and evening enrollments, although the institution might have a policy whereby part-time evening faculty are not provided office space. The faculty count should include graduate assistants who are directly responsible for class or laboratory sections to the extent of having responsibility for the assignment of grades.

The following guidelines are provided for individual office spaces:

Single Occupancy Offices	
1. Academic Vice-President, Dean of College	200 ASF per station
2. Department Chairman, Associate Dean of College	150 ASF per station
3. Faculty	120 ASF per station
4. Graduate Assistant	60 ASF per station
5. Secretarial and Clerical	80 ASF per station
6. Studio-Offices (Music/Art)	180 ASF per station
Multiple Occupancy Offices	
1. Faculty	85 ASF per station
2. Graduate Assistant	50 ASF per station
3. Secretarial and Clerical	65 ASF per station

Service Space (according to number of FTE staff in department requiring office space)

0-5	150 ASF
6-10	200 ASF
11-20	250 ASF
21-30	300 ASF
31 and over	350 ASF plus 5 ASF for each FTE staff over 30

Conference Room Space

Guidelines for ASF per conference room station are presented in the section for classrooms. In addition to the primary space as set forth in that section, an additional 30 ASF for service space (per conference room) should be added. An average of one conference room station for each three FTE professional staff is considered appropriate for planning purposes.

In the program planning phase, office service and conference room space should be defined on a room-by-room basis even though the above guidelines are in terms of total ASF for these types of space.

Although the above guidelines are appropriate for evaluating overall faculty office needs, the institution should not necessarily follow these guidelines literally in planning space for individual departments. For example, a deliberate decision might be made whereby faculty in a given discipline are provided larger offices in order to accommodate some research equipment and faculty in another discipline are provided smaller offices because their activities do not demand up to the normal office space requirement. It should be kept in mind, however, that it is expected that the overall average will not exceed the guidelines as set forth above.

Historically colleges and universities have generally attempted to provide a private office for each faculty member. This practice has often led to rather uninteresting space configurations which are less flexible, less efficient, and more expensive than certain alternate arrangements. Over recent years a few institutions around the country have begun to house faculty in large open areas with five, ten, or even more faculty in a single room. If these office areas are properly landscaped and accoustically treated, they provide a very pleasant work environment and might very well serve the educational program better than the traditional private office arrangement. In addition, such office areas are generally less expensive initially, can be adapted to other uses a great deal more easily, and are more efficient because less space is required per occupant. It is recognized that multiple occupancy office areas cannot be utilized exclusively at an institution (for example, a music studio-office must be private) but institutions are encouraged to plan for more of these kinds of spaces.

OTHER INSTRUCTIONAL SPACE

Included in this category is instructional space other than that included in the preceding sections. Examples of such space would be museums and galleries related to the instructional program, auditoriums and theatres related to instruction, and the like.

The Commission uses a general guideline of 5 ASF per FTE student (day and evening) for purposes of evaluating needs for space in this category. However, it is necessary that the institution define very carefully its specific needs for space of this type. For example, if the institution desires a general purpose auditorium, a careful study should be made of the appropriate seating capacity of the auditorium in relation to the planned size of the institution, the amount of space per station, and the requirements for dressing rooms, projection booths, and other service space.

ORGANIZED ACTIVITIES RELATED TO INSTRUCTIONAL DEPARTMENTS

This category should include laboratory schools, farms, and other facilities designed to provide professional training opportunities for students. The Commission has defined no procedures for assessing the needs for space of this type but the institution would be expected to make a thorough analysis of such needs, employing criteria which are used in other areas where appropriate and generally following the same kinds of procedures.

RESEARCH FACULTY OFFICES AND RELATED SECRETARIAL, CLERICAL, AND OFFICE SERVICE SPACE

Included here are offices for research faculty, directors of research organizational units, secretarial and clerical personnel of research units, and related office service space such as reception rooms, conference rooms, file rooms, and the like. The standards which should be observed in this area should be the same as for instructional faculty offices.

The Commission has developed no criteria for determining research faculty requirements; thus the institution should develop its own plan for projecting research personnel needs. It is expected that such a plan will be developed for the institution as a whole and that the plan, together with all criteria employed in its development, will be communicated via the master plan and the facilities program plans.

OTHER RESEARCH SPACE

This category of space would include research laboratories, storage rooms, equipment maintenance shops, and the like. The Commission has developed no criteria for projecting faculty and graduate students who require research space and it is necessary that the institution develop a plan for this purpose. The following specific criteria are presented as guidelines to be followed in determining research space requirements for each faculty and graduate student who requires research space:

Subject Field	ASF per Station		Service Space as a % of Primary Space	
	Faculty and Professional	Graduate Student	Large Departments	Small Departments
Agricultural Sciences				
Agronomy	110	70	- 122 -	
Animal Husbandry	120	80	- 122 -	
Dairy Husbandry	110	70	- 122 -	
Dairy Manufacturing	--	--	--	
Farm Management	--	--	--	
Horticulture	110	70	122	100
Ornamental Horticulture	110	70	122	100
Poultry Husbandry	110	70	- 233 -	
Forestry and Range Mgt.	100	60	- 100 -	
Watershed Management	--	--	--	
Biological Sciences				
Biological Science	--	--	--	
Biology, General	110	70	- 67 -	
Botany	110	70	100	67
Zoology	110	70	67	82
Anatomy and Histology	110	70	- 67 -	
Bacteriology	110	70	- 67 -	
Biochemistry	110	70	- 33 -	
Biophysics	110	70	- 33 -	
Entomology	110	70	- 100 -	
Genetics	110	70	- 67 -	
Pathology	110	70	- 122 -	
Plant Pathology	110	70	- 67 -	
Physiology	120	80	- 67 -	
Microbiology	110	70	- 67 -	
Mathematical Sciences				
Applied Mathematics	a	a	--	
Computer Science	a	a	--	
Mathematics	a	a	--	
Statistics	a	a	--	

Subject Field	ASF per Station		Service Space as a % of Primary Space	
	Faculty and Professional	Graduate Student	Large Departments	Small Departments
Physical Sciences				
Physical Science, General	--	--	--	--
Astrophysics	a	a	--	--
Astrogeophysics	a	a	--	--
Atmospheric Science	100	60	- 233 -	
Chemistry	110	75	33	25
Geology	100	60	25	100
Physics	110	75	67	54
Engineering Physics	110	75	- 54 -	
Astronomy	110	75	- 54 -	
Engineering Sciences				
Agricultural	120	80	- 33 -	
Architectural	90	60	- 33 -	
Chemical	110	70	- 33 -	
Civil	100	60	- 33 -	
Electrical	100	60	- 33 -	
Geological	100	60	- 33 -	
Geophysical	100	60	- 33 -	
Mechanical	100	60	- 33 -	
Metallurgical	110	75	- 33 -	
Mining	110	75	- 33 -	
Petroleum	110	75	- 33 -	
Petroleum Refining	110	75	- 33 -	
General, Engineering Science	--	--	--	
Industrial	100	60	- 33 -	
Social Sciences				
(A. Non-Laboratory)	a	a	--	
Social Sciences				
(B. Laboratory)				
Anthropology-Archeology	110	70	- 233 -	
Geography	100	60	- 233 -	
Psychology	110	70	25	33
Sociology	a	a	--	
Behavioral Science	a	a	--	
Library Science and Bibliography	a	a	--	
Arts and Crafts				
Architecture	90	60	- 33 -	
Fine Arts	b	b	--	
Commercial Arts	--	--	--	
Industrial Arts and Crafts	--	--	--	
Landscape Architecture	--	--	--	

Subject Field	ASF per Station		Service Space as a % of Primary Space	
	Faculty and Professional	Graduate Student	Large Departments	Small Departments
Arts and Crafts (continued)				
Music	b	b	--	
Planning	90	60	- 33 -	
Engineering Drawing, Graphics, Design	90	60	- 33 -	
Languages and Literature	a	a	--	
Business-General	a	a	--	
Education	c	c	--	
Home Economics				
General Home Economics	110	70	- 54 -	
Family and Child Development	--	--	--	
Clothing and Textiles	110	70	- 54 -	
Foods and Nutrition	110	70	- 100 -	
Law	a	a	--	
Journalism	a	a	--	
Health Professions				
Dentistry	--	--	--	
Medicine	--	--	--	
Nursing	--	--	--	
Pharmacy	110	70	- 100 -	
Veterinary Medicine	120	80	- 150 -	
Medical Technology	--	--	--	
Occupational, Physical, Speech Therapy	110	70	- 122 -	
Pre-Medicine, Pre-Dentistry, Pre-Nursing	--	--	--	

[a]No special research space criteria apply. In fact, it is usually the case that only office space is needed.

[b]See studio criteria under teaching laboratories.

[c]Research usually is conducted in the classroom, teaching laboratory, office, or library.

EXTENSION AND PUBLIC SERVICE OFFICE SPACE

Included here would be on-campus offices for extension administrative staff, on-campus offices for faculty whose primary assignment is extension work, and on-campus offices for personnel of radio and television stations, museums, and other similar facilities owned and operated by the institution if their primary purpose is to serve the general public.

No criteria have been developed by the Commission for determining the type of staffing required for these types of activities but the institution would be expected to make a thorough analysis of such staffing requirements. After staffing requirements are determined, space requirements should be developed by using the following guidelines:

Single Occupancy Offices

1. Director of Extension	150 ASF per station
2. Faculty	120 ASF per station
3. Graduate Assistant	60 ASF per station
4. Secretarial and Clerical	80 ASF per station

Multiple Occupancy Offices

1. Faculty	85 ASF per station
2. Graduate Assistant	50 ASF per station
3. Secretarial and Clerical	65 ASF per station

Service and Conference Room Space

See guidelines for instructional faculty offices and related secretarial, clerical, and office service space

OTHER PUBLIC SERVICE SPACE

Included here should be the non-office space of radio and television stations, museums, and other facilities owned and operated by the institution if the primary purpose of the organizations is to serve the general public. The Commission has developed no criteria for projecting space needs in this category and the institution would be expected to make a thorough analysis of such needs which would be communicated via the master plan and facility program plans.

LIBRARY SPACE

This category includes space used for the collection, storage, and circulation of books, periodicals, manuscripts, and other reading and reference materials as well as offices and office service rooms used by librarians. Guidelines have been developed for purposes of determining space needs for (a) stacks, (b) readers, and (c) service:

Stacks

0.0833 ASF per volume to be housed (this would provide one ASF for each 12 volumes).

Readers

6.25 ASF per FTE student (both day and evening) for universities and 5 ASF per FTE student (both day and evening) for other institutions (this would provide space for seating 25 per cent of the student body at one time with a station size of 25 ASF at universities and 20 ASF at other institutions).

Within the above overall guidelines for determining space needs for readers, the following specific criteria are provided for determining the ASF per station for specific types of reading areas: General reading rooms--18 ASF per station (rooms with 60 or more stations); Special reading rooms--22.5 ASF per station (periodicals, reference, etc.; for reading rooms with 40 stations or fewer); Carrels--30 ASF per station; Faculty study stations--48 ASF per station. It should be noted that no factor is included in the overall standard for faculty study stations on the assumption that faculty offices are provided for faculty study. However, if the institution should desire to allocate some of the reader space to faculty study stations it might do so.

Service (Including Office Space for Librarians)

Large libraries (total stack and reader space of 40,000 ASF or greater)--23 per cent of the first 40,000 ASF of stack and reader space and 19 per cent above 40,000 ASF.

Small Libraries (total stack and reader space of less than 40,000 ASF)--23 per cent of stack and reader space.

Volumes

Criteria for determining the number of volumes for four-year colleges and universities are as follows:

a. 50,750 volumes for a basic undergraduate library
b. 100 volumes for each FTE faculty member
c. 12 volumes for each FTE student (both day and evening)
d. 335 volumes for each undergraduate program
e. 3,050 volumes for each master's level program
f. 24,500 volumes for each doctoral program

Criteria for determining the number of volumes for community colleges are as follows:

a. 16,875 volumes for a basic general education offering
b. 51 volumes for each FTE faculty member
c. 5 volumes for each FTE student (both day and evening)
d. 165 volumes for each subject field of study

ADMINISTRATIVE AND GENERAL OFFICE SPACE

This category includes space for general executive and administrative offices, general administrative secretarial and clerical personnel, student services, admissions and registration, placement, public relations, institutional publications, business offices, etc. The following specific criteria are provided for determining space requirements for individual offices:

Single Occupancy Offices

1. President	300 ASF per station
2. Vice-Presidents	200 ASF per station
3. Director, Major Administrative Unit	180 ASF per station
4. Director, Small Administrative Unit; Professional Administrative Staff	120 ASF per station
5. Secretarial and Clerical	80 ASF per station

Multiple Occupancy Offices

1. Professional Administrative Staff; e.g., accountants, office managers	85 ASF per station
2. Secretarial and Clerical	65 ASF per station

Service Space (According to number of FTE staff in organizational unit requiring office space)

0-5	175 ASF
6-10	225 ASF
11-20	275 ASF
21-30	325 ASF
31 and over	375 ASF plus 5 ASF for each FTE staff over 30

Conference Room Space

Guidelines for ASF per conference room station are presented in the section for classrooms. In addition to the primary space as set forth in that section, an additional 30 ASF for service space (per conference room) should be added. An average of one conference room station for each one and one-half FTE professional staff is considered appropriate for planning purposes.

In the program planning phase office service and conference room space should be defined on a room-by-room basis even though the above guidelines are presented in aggregate terms.

The Commission uses general guidelines for administrative and general office space for purposes of global projections as follows:

Assignable square feet per FTE student (day and evening) as follows:

Enrollment	Universities	Other
First 2,000 students	6.0	5.0
Next 3,000 students	4.0	3.0
Next 5,000 students	3.0	2.5
Next 5,000 students	2.5	2.0
All over 15,000 students	2.0	1.5

OTHER ADMINISTRATIVE AND GENERAL SPACE

This category includes space, other than office and related service space, which is used for administrative purposes. An example would be space to house administrative data processing equipment. No guidelines have been developed for this category of space but the institution would be expected to make appropriate analyses of needs in this area and communicate those analyses via the master plan or facilities program plans.

PHYSICAL PLANT SERVICE SPACE

This category includes maintenance shops, machine shops, motor pools, garages, heating plants, central boiler rooms, police and fire protection facilities, and the like.

Space needs in this category may best be estimated by a general analysis of the requirements of such operations. As a rule, these components are not strongly related to institutional size, but constitute certain minimum fixed requirements. As the total floor area of the institutional plant passes certain magnitudes, additional floor area for buildings and grounds service operations may be required.

As a rule of thumb, the Commission has employed a factor of 7.5 per cent of all other educational and general space (ASF) for determining physical plant service space needs. Other rules of thumb have been used in Colorado previously. These rules of thumb, expressed as a per cent ot the total gross square feet of all other building area to be maintained and serviced, are as follows:

Office Space	0.4 per cent
Maintenance Shops	1.1 per cent
Heating Plant	0.86 per cent
Garages	0.84 per cent
General Storage	1.25 per cent
Miscellaneous	0.27 per cent

Since institutional plant varies in size and location, these figures are not universally applicable. For example, heating plant very likely declines relative to total plant as the total size of the plant increases. Conversely, maintenance shops probably increase in relative importance and begin to perform projects that were formerly subcontracted. Once again, these figures should be used as a point of departure and only in the initial phase of gross approximation of future physical plant requirements.

STUDENT RESIDENTIAL FACILITIES

1. Single Occupancy Dormitories		
Living Quarters	108 ASF	73 per cent
Toilets, Washrooms, Showers	12 ASF	8 per cent
Recreational and Service[a]	28 ASF	19 per cent
Total	148 ASF	100 per cent
2. Double Occupancy Dormitories		
Living Quarters	190 ASF	71 per cent
Toilets, Washrooms, Showers	28 ASF	10 per cent
Recreational and Service[a]	50 ASF	19 per cent
Total	268 ASF	100 per cent
3. Married Student and Faculty-Staff Apartments		
One-Bedroom Unit	620 ASF	
Two-Bedroom Unit	750 ASF	
Three-Bedroom Unit	880 ASF	

[a]Excluding food service facilities.

FOOD SERVICE OPERATIONS

1. Space per Dining Station

Family Style	12.5 ASF
Cafeteria Style	11.0 ASF
Snack Bars	10.0 ASF

2. Number of Sittings (Turnover Factor) at Peak Interval

Family Style	2
Cafeteria Style	4
Snack Bars	-

3. Preparation, Serving, Cleanup

Family Style	8.5 ASF per dining station
Cafeteria Style	7.5 ASF per dining station
Snack Bars	5.5 ASF per dining station

4. Storage and Miscellaneous

25 per cent of total food service space

STUDENT SERVICE FACILITIES

General Guideline — 9.75 ASF per student (head count)[a]

Specific Criteria for Selected Student Service Components:

Lockers: per locker (full size, floor standing)	6.75 ASF
Lounges, common rooms: per station	20 ASF
Post Office: per mailbox (including auxiliary service facilities such as counters, etc.)	0.75 ASF
Meeting room: per station	20 ASF
Barber shop: per chair	100 ASF
Billiards: per table	320 ASF
Bowling alley: per lane	575 ASF
Kitchenette	20 ASF
Table tennis: per table	345 ASF

[a]The planning criterion of 9.75 ASF per student would apply only in the absence of student center facilities. Should student center facilities be available, the service areas outside the student center could be scaled down to about 1.5 ASF per student. The planning criterion for the allocation of space per student in student center facilities will vary widely since it is largely dependent upon the character and extent of the individual space or activity components that are included.

BUILDING EFFICIENCY FACTORS

In order to convert assignable square feet (ASF)[a] for all major building types into gross square feet (GSF)[a] the following ratios are considered appropriate. It is recognized that ratios are somewhat dependent upon such influencing elements as building size and definitive statements of functions to be housed. The following factors are considered to be achievable for more or less normal building configurations. The ratio of ASF to GSF is expressed as a per cent and indicates the efficiency of the building. By dividing the ASF computed for a particular building by the ratio for that building type, the GSF required can be determined.

Building Type	Ratio: ASF to GSF
Office Building	68%
Classroom Building	68%
Classroom/Office Building	68%
HPER Building with gymnasium, classrooms, and service space	85%
HPER Building with gymnasium, classrooms, service space, swimming pool, and handball courts	80%
Hospital or Infirmary	63%
Engineering Building	80%
Instructional Shop Building	80%
Library Building	75%
Fine Arts Building	72%
Science Building	68%
Physical Plant Service Building	90%
Student Union	75%
Dormitory	65%
Apartment Building	75–90%

[a]See definitions.

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D2

DEFINITIONS/ABBREVIATIONS. . . . . .

DEFINITIONS/ABBREVIATIONS

Over the years, there have been many conflicts and misunderstandings which have arisen during planning efforts which would have been avoided if there had existed appropriate understanding and consistency in connection with the "planning language." This listing of definitions includes the most frequently used terms, setting forth the term itself, its abbreviation in parenthesis, and the definition of the term. In order to facilitate its use, the listing is divided into related categories. Terms falling into a specific category are then alphabetized. The related categories are as follows:

1. Instructional Program
2. Students
3. Faculty/Staff
4. Facilities

Abbreviations have not been developed for all terms contained in the listing of definitions.

INSTRUCTIONAL PROGRAM

ACADEMIC YEAR

The academic year is a unit of time made up of either two semesters or three quarters extending generally from fall through spring and including any time periods during that interim.

CLASS

A class is a unit of one or more students organized for formal instruction in a specific course under the supervision of an instructor or instructors. A "class" is a division of a course and would be the same as "section." A "class" generally would be the same as "activity" as used in the CAMPUS system.

CONTACT HOUR

A contact hour is a programmed class period of not less than 50 minutes nor more than 60 minutes. Generally, in lecture situations one contact hour equals one student credit and in laboratory situations 2-3 contact hours equal one student credit.

COURSE

Course is a term which denotes a unit of instruction, normally carrying a credit value, which constitutes a part of the curriculum.

COURSE CREDIT

Course credit is the numerical credit value, described in semester or quarter credits, which is awarded upon successful completion of a course. A course credit normally is awarded for: (1) a lecture meeting one hour per week for a term, (2) a recitation or laboratory activity meeting two hours per week, or (3) a laboratory meeting three hours per week, or combinations of these, depending primarily upon the kind of instruction and material covered in the course. Quarter credits are converted to semester credits by multiplying the number of quarter credits by two-thirds. Semester credits are converted to quarter credits by multiplying the number of semester credits by one and one-half.

MAXIMUM TERM ENROLLMENT

The maximum term enrollment is that quarter or semester which generates the largest student FTE for the entire institution. In most cases this will be fall term.

Once the maximum term has been determined, it should be used for all space requirement calculations even though the maximum enrollment for a particular course may occur during a different quarter or semester.

An exception to this could occur in an instance where a very specialized space was required for a particular course offering. Here the space requirements might be generated by a maximum term enrollment different than that for the remainder of the institution. When this occurs it should be noted and explained.

PERIOD

A period is a unit of time of approximately one hour. Generally, a class period consists of 50 minutes of instruction, with an allowance of ten minutes for changing classes. A class meeting scheduled for two consecutive hours, possibly a total of 110 minutes, should be considered as two class periods in a space utilization study. A class meeting scheduled for an hour and a half, which in most colleges would amount to 75 or 80 minutes of actual instruction, should be processed as 1.5 class periods in a space utilization study. The terms, "period," "class period," and "contact hour" are used synonymously.

SECTION

See "class."

SEMESTER

A semester is a subdivision of the academic calendar, normally consisting of 16 to 18 weeks. Two semesters constitute one academic year.

STUDENT CREDITS

A figure which represents the credit value of a course multiplied by the number of students enrolled in the course. Total student credits for an institution would be the sum of the student credits for each course.

QUARTER

A quarter is a subdivision of the academic calendar, normally consisting of 10 to 12 weeks. Three quarters constitute one academic year.

STUDENTS

FULL-TIME EQUIVALENT (FTE)

One full-time equivalent student (FTE) is represented by the amount of instruction undertaken by one student in a "normal" program of 15 credits of instruction in a quarter or semester. Thus, during a full academic year, each 45 hours of quarter credits or 30 hours of semester credits are equal to one FTE student. In addition to the formally awarded credits used as a basis for calculating FTE students, a factor should be added for doctoral dissertations. In the term in which any doctoral degree is awarded for which it is presumed that the dissertation subject requires approximately one year of full-time work, one FTE (30 semester or 45 quarter credits) should be added. If any credits are awarded for doctoral research or dissertations, such credits must be deducted from the one FTE (30 semester or 45 quarter credits) added upon completion of the doctorate. Computation of institutional workload in terms of FTE students (or student credits produced) removes distinctions between full-time and part-time students.

FTE DAY STUDENT

The FTE day student is the FTE student computed on the basis of credits taken in classes beginning during the day up to 5:00 p.m.

FTE EVENING STUDENT

The FTE evening student is the FTE student computed on the basis of credits taken in classes beginning during the evening, 5:00 p.m. or after.

HEAD COUNT (HC)

Head count is the measure of the total number of different individual students enrolled in an institution. Head count includes full-time students, part-time students, day students, evening students, credit earning students, and students taking courses for no credit. Head count numbers are normally used in computing space requirements for facilities related to numbers of individual students regardless of how many credits each is taking; i.e., housing, food service, parking, health center facilities, admissions counselors, etc.

LEVEL OF STUDENT

Level of student denotes the extent of progress toward a degree. It is divided into the following categories:

Lower Division.--Freshmen and Sophomores (students with fewer than 60 semester credits or 90 quarter credits)

Upper Division.--Juniors and Seniors (students with 60 or more semester credits or 90 or more quarter credits who have not earned a baccalaureate degree)

Beginning Graduate.--Students holding bona fide bachelor's degrees, but not master's degrees (or equivalent by institutional criteria) who have been admitted to the graduate college or division either as candidates for advanced degrees or certificates, or as unclassified graduate students. Students enrolled in the first year of professional programs in law or veterinary medicine are to be considered as first-year graduate students.

Advanced Graduate.--Students holding bona fide master's degrees, or equivalent, who have been admitted to the graduate college or division or certificate program beyond the master's degree. Students enrolled in the second and succeeding years of professional programs in law and veterinary medicine are to be considered advanced graduate students. If a distinction of first-year graduates and advanced graduates cannot be made, consider all graduates as first-year.

FACULTY AND STAFF

FULL-TIME ACADEMIC ADMINISTRATORS--ACADEMIC YEAR EQUIVALENTS

All academic deans, deans of faculty, deans of graduate schools, the provost, summer school deans, and divisional and department heads (to the extent they perform administrative functions).

FULL-TIME INSTRUCTIONAL FACULTY MEMBER--ACADEMIC YEAR EQUIVALENTS

A full-time instructional faculty member is defined as a person whose contract of employment provides that his primary obligation to the college or university for the academic year shall be teaching. Included should be those faculty on sabbatical leave. The responsibility will normally extend to the determination of course content, the monitoring of school progress and the assignment of grades upon completion of required work. This definition is intended to exclude teaching assistants and fellows who may do some teaching but have only a limited responsibility for a laboratory or class section.

FULL-TIME RESIDENT INSTRUCTION PROFESSIONAL STAFF--ACADEMIC YEAR EQUIVALENTS

Includes both academic administrative staff and instructional staff as shown above, as well as other professional staff whose functions relate directly to the on-campus instructional process.

Here, and for the two preceding categories, staff who are employed full-time during any term of the year should be equated to 9-10 month FTE's and shown as full-time for the term or terms during which he teaches full-time. Thus, a faculty member teaching full-time during a summer quarter and half-time during each of the other three quarters would be counted as 1/3 FTE in the full-time category (for summer teaching) and 1/2 FTE in the part-time category (for academic year teaching). The summer load of a faculty member teaching at an institution whose summer session is the equivalent of 1/2 a semester would be counted as 1/4 FTE.

Payment for sabbatical leaves should be included on the basis of the academic year and the amount of time for which individuals are being paid. For example, if an individual is granted a sabbatical leave for one academic year at one-half his regular pay, he should be reported as 1/2 FTE.

Faculty who are employed on a 11-12 month basis should be converted to 9-10 monthly FTE's by dividing the total number of 11-12 month personnel by 0.833.

PART-TIME PROFESSIONAL INSTRUCTIONAL FACULTY--ACADEMIC YEAR EQUIVALENTS

This category may include any of the following:

a) Graduate students assigned responsibility for teaching undergraduate classes.

b) Administrative, student counseling, or any other such personnel who have accepted responsibility for teaching a class.

c) Retired faculty members, or faculty members approaching retirement, who have accepted a reduced teaching load.

d) Community resource people and honorarium faculty specifically retained to teach on a part-time basis.

The full-time-equivalency designation for a part-time faculty member should be made on the basis of the contractual agreement with the faculty member. Presumably this would be determined on the basis of the service which the part-time faculty member agrees to provide as related to service expected of a full-time faculty member. If, for example, (1) faculty members generally teach 12 credits per term at the institution (a total of 36 credits for three quarters), (2) the teaching of the 12 credits is considered to be about 80 per cent of a faculty member's total contribution to the institution, and (3) a part-time faculty member is hired to teach 3 credits for one quarter and provide no additional service beyond the teaching, the FTE designation for the part-time faculty should be computed as follows: 3/36 X .80 = .067. If the faculty member teaches 3 credits for three quarters, the FTE would be .20.

Graduate teaching assistants should be included in this category if they are responsible for teaching classes, even if they are under nominal supervision of senior faculty.

FTE INSTRUCTIONAL FACULTY--ACADEMIC YEAR

The number of FTE instructional faculty is determined by adding the number of full-time faculty and full-time equivalencies of all part-time faculty. Thus, if there are 100 faculty employed on a full-time basis and 50 faculty employed on a half-time basis, the FTE count would be 125.

PROFESSIONAL STAFF

The term "professional staff" when used for classification of personnel, should be used in the generally accepted usage or sense of the term, to designate personnel who have attained some special degree of education or competence and who are charged with a major responsibility, or the supervision of some phase of the institutional program.

Professional staff should be those institutional employees who are exempt from the state personnel system (Section 16, Article 26-5-34, Colorado Statutes) as follows:

a) Officers of an educational institution and their professional staff assistants.

b) Heads of administrative units directly responsible to officers of an educational institution.

c) Heads of administrative units, and their professional staff assistants, which relate directly to the educational function of an educational institution and whose qualifications include comparable training and experience as that required for a faculty member.

d) The heads of those functions of an educational institution which are supported primarily by student fees and charges, including heads of residence halls.

e) The head of and professional staff members of departments of intercollegiate athletics.

STUDENT/PROFESSIONAL STAFF RATIO--MAIN CAMPUS

This ratio is computed by dividing the FTE student enrollment for a given term, academic year, or fiscal year (main campus) by the FTE resident instruction professional staff (full- and part-time) for the term, academic year, or fiscal year. Extension FTE should be excluded in computing this student/professional staff ratio.

SUPPORT STAFF

Defined as personnel of varying skills whose responsibilities are limited to specific tasks or assignments and who generally will have limited supervisory responsibilities.

ASSISTANTS

Defined as graduate students (and occasionally undergraduate students) who may assist the faculty in teaching and research, although they are not directly responsible for class or laboratory sections. Assistants who have major responsibility for the teaching of classes should be reported as part-time faculty.

FACILITIES

ASSIGNABLE AREA (ASF)

Assignable area is measured in square feet and consists of all areas assigned to, or available for assignment to, an occupant, including every type of space functionally usable by an occupant except those spaces included in "non-assignable area" defined in a following paragraph. Areas are measured from inside face of exterior walls and inside face of interior partitions and walls.

BUILDING COST

The cost of a building is measured in dollars and is the sum of the cost of the structure, built-in equipment, and utilities out 5 feet from the building.

BUILDING COST PER GROSS SQUARE FOOT

The building cost per gross square foot is measured in dollars and is computed by dividing the total gross square feet into the building cost.

BUILDING EFFICIENCY RATIO

The building efficiency ratio is measured in percentages. It compares the assignable area against the gross area of the building. Thus, a building efficiency ratio of 68:100

would indicate that 68 per cent of the gross area is made up of assignable areas. The remaining 32 per cent of the gross area is the sum of the building's construction area and non-assignable area.

CONSTRUCTION AREA (CSF)

Construction area is measured in square feet and consists of the area of the building which is occupied by exterior walls, fire walls, permanent partitions, and demountable partitions. Generally, the construction area is the residual after assignable and non-assignable areas have been subtracted from gross area.

CONSTRUCTION COST

The construction cost of a building is measured in dollars and is the sum of the costs of the structure, including built-in equipment and utilities out 5 feet from the building, architectural and engineering fees, program planning, surveys and site investigation, construction supervision, material tests, and contingencies. For completed buildings, construction cost is based upon actual amounts. For buildings under construction, construction cost is based upon current contract amounts. For proposed buildings, construction cost is based upon estimated amounts plus a contingency computed by multiplying construction cost items times 3 per cent.

CONSTRUCTION COST PER GROSS SQUARE FOOT

The construction cost per gross square foot is measured in dollars and is computed by dividing the total gross square feet into the construction cost.

CONSTRUCTION COST PER CUBIC FOOT

The construction cost per cubic foot of a building is measured in dollars and is computed by dividing the volume into the construction cost.

GROSS AREA (GSF)

The gross area of a building is the square foot measurement including the area taken up by structural elements such as exterior and interior walls and columns. It should be the sum of the areas of all floors of the building, including basements, mezzanines, and roofed loading or shipping platforms. Such features as pipe trenches, exterior terraces or steps, chimneys, roof overhangs, covered walkways, porches, and open roofed-over areas that are paved should be excluded from the measurements.

Generally, the gross area of a building shall be the total area exclusive of covered walkways, open roofed-over areas that are paved, porches, and similar spaces.

NON-ASSIGNABLE AREA

Non-assignable area is measured in square feet and is the sum of all areas used for custodial services, corridors, elevators, escalators, stairways, lobbies, mechanical equip-

ment, utility services, public toilets, and loading platforms (except when required for operational reasons and thus, includable in assignable area). Areas are measured from the inside face of exterior walls and the inside face of interior partitions and walls.

PROJECT COST

The project cost of a building is measured in dollars and is the sum of the construction cost and the costs of program planning, site work not included in the construction cost, landscaping, utilities from supply to 5 feet from the building, movable equipment, and land acquisition.

FIXED EQUIPMENT

Fixed equipment is that equipment which is attached to the building; i.e., AV blinds, venetian blinds, draperies, carpeting, fixed auditorium seating, bleacher seating, demountable partitions, coil walls, lockers, permanent benches, basketball backstops, fixed casework attached and not attached to the utility systems, etc.

MOVABLE EQUIPMENT

Movable equipment is that equipment not attached to the building, such as chairs, tables, desks, rolling storage units, portable projection screens and tables, partitions on wheels, etc.

ROOM CAPACITY

The room capacity denotes the number of student stations an instructional space is designed to accommodate, the number of office stations an office is designed for, etc.

ROOM UTILIZATION

Room utilization denotes the number of hours per week a room is occupied by regularly scheduled classes. This number varies among institutions and will vary with different types of teaching spaces.

STUDENT STATION

A student station consists of those facilities necessary to accommodate one student for one class period in a particular teaching space. The area required for one student station will vary with the type of teaching space and, in the cases of classrooms and lecture halls, with the number of student stations in the teaching space.

STUDENT STATION UTILIZATION

Student station utilization is the number of hours student stations are occupied when the room is in scheduled use. This percentage varies among institutions and also varies with different types of teaching spaces.

TOTAL AREA

The total area of a building is measured in square feet. It is the sum of the areas of the several floors of the building, including basements, mezzanine and intermediate floored tiers and penthouses of headroom height, measured from the exterior faces of exterior walls or from the center line of walls separating buildings. Covered walkways, open roofed-over areas that are paved, porches and similar spaces shall have the architectural area multiplied by an area factor of 0.50.* The total area does not include such features as pipe trenches, exterior terraces or steps, chimneys, roof overhangs, etc.

*These spaces are understood to include entrance canopies, window canopies and overhanging portions of buildings. Roof overhangs projecting more than 3 feet from face of exterior wall shall be considered as "similar spaces" and shall have the total area multiplied by an area factor of 0.50.
(Source: American Institute of Architects, Document D101)

VOLUME

The volume of a building is measured in cubic feet and is the product of the total area defined herein and the height from the under side of the lowest floor construction system, to the average height of the surface of the finished roof above for the various parts of the building.
(Source: American Institute of Architects, Document D101)

WORK STATION

A work station is office-type space in either single occupancy or multiple occupancy area used by faculty, professional (e.g., president; vice-president; dean, chairman, director; research personnel; accountant; teaching assistant; supporting technical, including laboratory research assistants and data analyst, supporting clerical, including secretaries, office managers, clerks, typists, graduate students, etc.)

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D3

STATE LAWS/POLICIES RELATING TO FACILITIES DEVELOPMENT. . . . . .

THE STATE LAWS/POLICIES SECTION IS NOT COMPLETE AT THIS TIME. IT WILL BE MADE AVAILABLE AT A LATER DATE

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D4

INSTRUCTIONS AND FORMS FOR COMPLETING PHYSICAL PLANT INVENTORY. . . .

COLORADO COMMISSION ON HIGHER EDUCATION

719 STATE SERVICES BUILDING
DENVER 80203

TELE: AREA 303
892-2115

INSTRUCTIONS FOR COMPLETING FACILITIES INVENTORY FORMS

Revised September 1970

General Instructions

These instructions apply to the five forms to be used by each institution of higher education in supplying information to the Commission with regard to rooms, buildings, and land. The five forms to which these instructions apply are:

A-1 Room Inventory
A-2 Building Inventory
A-3 Source of Funds for Building Construction
A-4 Land Inventory
A-5 Detailed Project Cost

These inventory forms and instructions generally follow the USCE Facilities Classifications and Inventory Procedures for Institutions and State Agencies.

A-1, A-2, and A-3 data should be reported to the CCHE for each annual update using magnetic computer tape, punch cards, or the paper forms depending on the automated data processing capabilities of the institution. At present, A-4 and A-5 data should be filled in on the appropriate forms by all institutions. Specific reporting procedures are outlined in a memorandum which is sent to the institutional facilities coordinators before each update.

Specific Instructions

Form A-1: Room Inventory

This form is designed to obtain pertinent information about each room on the campus. One line on the room inventory form should be completed for each room (as defined in these instructions) in each building. The room listing for each building should begin on a separate form.

Following is a list of basic terms being used in the room inventory together with brief definitions: (For detailed definitions see USOE Manual referred to above.)

Assignable Area

All areas assigned to, or available for assignment to, an occupant, including every type of space functionally usable by an occupant except those spaces included in "non-assignable area" defined in the following paragraph. Deductions should not be made for columns and projections necessary to the building.

Non-Assignable Area

All areas used for custodial services, corridors, elevators, escalators, stairways, lobbies, mechanical equipment, utility services, public toilets, and loading platforms (except when required for operational reasons and, thus, includable in assignable area).

Unassigned Area

All areas which are unassigned at the time of the inventory either because of the nature of the space or because of its present condition. This includes space which is inactive, unfinished, or undergoing alteration or conversion.

Rooms

A room for these purposes is any interior space enclosed by walls or separated from other places by walls or partitions. All assignable, non-assignable, and unassigned areas as defined above should be considered rooms for purposes of this inventory. Instructions for measuring rooms are given in the section entitled "Square Feet" of the A-1 instructions.

Total Room Area

The sum of all the assignable, non-assignable, and unassigned space contained within a building; i.e., the sum of all the space contained in all the rooms (as defined above) which exist in the building.

The following provides explanations for the individual A-1 entries:

Institution Number

The Institution Number should be shown at the top of each page (in card columns 1-5, with the first digit of the institution number beginning with card column 1) of Form A-1. The following numbers should be used for this purpose:

Adams State College	13450
Aims Community College	75820
Arapahoe Community College	13460
Colorado College	13470
Colorado Mountain College--Glenwood Springs	45060
Colorado Mountain College--Leadville	45061
Colorado School of Mines	13480
Colorado State University--Main Campus	13500
Colorado State University--Foothills Campus	13505
Community College of Denver--North Campus	79331
Community College of Denver--West Campus	79332
Community College of Denver--Central Campus	79333
El Paso Community College	88960
Fort Lewis College	13530
Lamar Community College	13550
Loretto Heights College	13560
Mesa College	13580
Metropolitan State College	13600
Morgan County Community College	*
Northeastern Junior College	13610
Otero Junior College	13620
Rangely College	13590
Regis College	13630
Southern Colorado State College--Orman Campus	13650
Southern Colorado State College--Belmont Campus	13651
Temple Buell College	13510
Trinidad State Junior College	13680
University of Colorado--Boulder Campus	13700
University of Colorado--Denver Campus	13701
University of Colorado--Colorado Springs Campus	13702
University of Colorado--Medical Center	13703
University of Denver	13710
University of Northern Colorado	13490
Western State College of Colorado	13720

Building Name

The Building Name should be abbreviated to six or fewer letters and inserted in card columns 6-11. The same abbreviations should be used on Form A-2. The first letter of the building name should begin with card column 6. When abbreviations of less than six letters are used, unused columns may be left blank.

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*U. S. O. E. code not assigned as yet.

Building Number

The Building Number should be assigned by the institution. This unique number should be coded as four digits and inserted in columns 12-15, right justified; leading zeroes should be inserted whenever necessary. All characters of the building number must be numeric.

Building Phase

Building Phase specifies whether the room is included in the original portion of the building, in a first addition thereto, etc. The original structure should be coded "0," the first addition "1," the second addition "2," etc.; the code to be inserted in card column 16.

Room Number

Generally, the room number reported to us should be the same as the number appearing on the door of the room. When a room or non-assignable area has not been given a room number, a unique number should be assigned for purposes of this inventory. The same room number should never be assigned to two rooms or areas in the same building.

While the room number field can accommodate any combination of alphabetic and numeric characters (card columns 17-23), it is most important that the institution use a system which is internally consistent, so that the room inventory room number will match with the classes taught (B-1) study room number when the two files are merged during the annual facilities inventory study.

We would recommend that the following system, which has been in general use, be continued at every institution where this is feasible. Under this system, four-digit room numbers would be right justified in card column 22 with leading zeroes inserted in card columns 19, 20, and 21 when necessary. Card columns 17 and 18 would remain blank except when they are used for alphabetical prefixes and card column 23 would remain blank except when used for an alphabetical suffix.

Functional Use Code

The broad area of institutional operation served by the room; i.e., instruction, research, extension and public service, and the like. Thus, an office (under the room type code) might be classified in any of the functional use categories depending upon the operational area in which the occupant of the office is involved. The functional use code should be determined on the basis

of the room's primary use. A complete list of these codes and detailed definitions are included as an appendix. The two-digit code should be inserted in card columns 24 and 25.

Room Type Code

The specific kind of room from the standpoint of the activity it is designed to accommodate; i.e., office, classroom, laboratory, and the like. The room type code should be determined on the basis of the room's primary use. A complete list of these codes and detailed definitions are included as an appendix. The three-digit code should be inserted in card columns 26-28. Card columns 29 and 30 can be used if the institution wishes to make a more detailed breakdown of room types than is provided for by the three-digit room type code.

Subject Field and Organizational Unit Code

The subject field code for space classified under functional use codes 10, 15, 20, and 30 or the organizational unit code for space classified under functional use codes 40, 50, 55, 60, 70, 80, and 00 should be determined on the basis of a room's primary use. An exception should be made in the case of classrooms available for general use which should be coded with subject field code 1110, General Use. Classrooms assigned to particular departments should be identified by the subject field code appropriate to that discipline. A complete list of all the subject field codes and organizational use codes and detailed definitions of them are included as an appendix. The four-digit subject field or organizational unit code should be inserted in card columns 31-34. Card columns 35-37 can be used if the institution wishes to make a more detailed breakdown of subject fields than is provided for by the four-digit subject-field code.

Square Feet

The square footage of a room should be inserted in card columns 38-42. It should be right justified with leading zeroes inserted as necessary (e.g., 00897 would be the listing for a room with 897 square feet). The area of a room should be obtained by measuring between the inside surfaces of the walls and partitions at or near the floor level. Linear measurements of length and width--to the nearest tenth of a foot--should be multiplied to obtain square footage rounded to the nearest square foot. Space occupied by alcoves, built-in shelves, lockers, and cabinets opening into and serving a room should be included in the count of total square feet of floor space for that room if such space functions as one room. Large walk-in closets and the like should be classified separately. Such space as that in attics and basements and under stairwells that is used for storage or other semi-active uses should be included

in the inventory as assignable space. All other interior space, including such non-assignable areas as hallways, and janitorial closets, should also be included as rooms in the inventory.

Actual Stations

This item need be completed only for rooms coded under functional use code 10 and room type codes 110, 210, 310, 311, 312, and 313. It should be placed in card columns 43-47. This entry should be right justified with leading zeroes inserted as necessary. An actual station is the area necessary to accommodate one person at a given time. A station in a classroom or laboratory is the area occupied by a chair, seat, laboratory desk, or some other facility necessary to accommodate one student during an instructional period. Any station which is available for the use of the instructor in a classroom or teaching laboratory should not be counted. A station in an office generally consists of a desk, a chair, and other office-type equipment required to accommodate one permanent occupant. The "number of actual stations" is the total number of stations contained in the room at the time of the inventory. For certain kinds of facilities, such as home economics laboratories, it will be necessary to make an estimate of the total number of students who can be accommodated at any one time. A suggested method is to ask the instructor or instructors who regularly hold classes in the room to determine the maximum number of students that can be comfortably accommodated for a class meeting.

Computed Stations (Optional)

This item is not required. If an institution wishes to use it, the data should be placed in card columns 48-52. The computed stations for a room which has actual stations in it (see above) is the number of stations that would normally be expected to be contained in that room if the CCHE space standards are being adhered to. Computation consists of dividing the assignable square feet by the appropriate CCHE space standard. If local fire or safety regulations restrict the number of stations allowable in a room to fewer stations than are called for by the CCHE criteria, the restricted number should be used as the computed station figure for that space.

Additional Institutional Information

If the institution desires to add additional information to that requested on Form A-1, it may develop its own format for such purposes using card columns 53 through 79.

Card Type Code

All A-1 cards should have a 1 (one) inserted in card column 80. This allows A-1 cards to be readily sorted out from the total facilities file when only A-1 information is desired.

Form A-2: Building Inventory

This form provides summary data for each building used by the institution. One form should be completed for each building (or each major addition to the building as per subsequent instructions). The first, third, and fourth sections of the form should be completed by institutional officials. The second section, pertaining to building evaluation, will be completed by consultants working in conjunction with the Commission.

The following provides explanations for the form entries:

Institution Number

This number should be inserted in card columns 1-5, with the first digit beginning with card column 1. The number should be obtained from the instructions for Form A-1.

Building Name

Report the name of the building (in card columns 6-11) in the same manner as reported on Form A-1.

Building Number

The building number should be inserted in card columns 12-15 and should be the same as reported on Form A-1.

Building Phase

A separate Form A-2 should be completed for the original building and each major addition thereto. Thus, if a building consists of an original structure constructed in 1912, a first addition constructed in 1930, and a second addition constructed in 1952, three separate forms should be completed for the building setting forth appropriate information for each phase of the building. The building name and number should be the same on all forms. The appropriate code should be entered in card column 16 (see A-1 instructions under "Building Phase" for an explanation of the codes).

Number of Rooms

This is obtained by counting the rooms listed on the room inventory forms. The last digit should be inserted in card column 20 (right justified), with leading zeroes inserted in card columns 17-19 as necessary.

Total Room Area

This is obtained by totaling the area for all rooms (including all non-assignable areas) reported on the A-1 forms. The last digit should be inserted in card column 26 (right justified), with leading zeroes inserted in card columns 21-25 as necessary.

Total Outside Gross Square Feet

The total square feet of floor areas included within the outside faces of exterior walls. This figure should include circulation areas such as corridors, lobbies, elevators, stairwells, and the like, and should be the sum of all the floors of the building including basements, mezzanines, and roofed loading or shipping platforms. It may be taken from building blueprints, if available. The last digit should be inserted in card column 32 (right justified), with leading zeroes inserted in card columns 27-31 as necessary.

Year Phase Completed

If the exact year is unknown it should be estimated as accurately as possible. The last three digits of the year should be shown in card columns 33-35 (e.g., a building completed in 1930 would be coded "930").

Ownership

The number corresponding to the appropriate status of ownership should be entered in card column 36 opposite "Ownership." "Owned" refers to buildings which are owned by the institution or being paid for on an amortization schedule. "Leased or Rented" refers to a building leased or rented to the institution at a typical local rate. "Lease-Purchase" refers to facilities, on which payments are now being made, whose title will ultimately pass to the institution. Buildings which are shared with another institution should be coded "5," "6," "7," or "8" depending on whether the other institution is of college level or below and on whether the building is owned or not owned by the reporting institution. A complete list of these codes is contained on each A-2 form.

General Building Type

Enter in card columns 37 and 38 the code on the form which best describes the general type of the building from the standpoint of space included in the building. A complete list of these codes is contained on each A-2 form.

Air-Conditioning of Building

The code indicating whether or not a building is air-conditioned should be shown in card column 39. A building should be classified as "Partially Air-Conditioned" or "Air-Conditioned" only if it has a central air conditioning system for a portion or all of the building.

Levels

Insert in card column 40 the number of floors in the building which are totally below grade level. Insert in card columns 41-42 the number of floors partially or wholly above grade level. The last digit should be placed in card column 42.

Building Evaluation Section

The information requested in card columns 43-49 should not be filled in by the institution. It will be filled in by the CCHE in consultation with the Division of Public Works and institutional officials.

Total Construction Cost

Insert in card columns 50-54 the total construction cost in thousands of dollars. This should be supplied for only those buildings completed after June 30, 1964, unless the institution desires to supply for all buildings. The last digit should appear in card column 54, with leading zeroes inserted in card columns 50-53 as necessary.

Type of Housing

The number corresponding to the appropriate type of occupant should be entered in card column 55 opposite "Type of Housing." A list of the possible types of occupants is contained on each A-2 form.

Design Capacity

Card columns 56-59 should be completed for single student housing only. "Design Capacity" refers to the number of students that the building is

designed to accommodate. The last digit of the number should be inserted in card column 59 (right justified), with leading zeroes inserted in card columns 56-58 as necessary.

Card Type Code

All A-2 cards should have a 2 inserted in card column 80. This allows A-2 cards to be readily sorted out from the total facilities inventory file when only A-2 information is desired.

Form A-3: Source of Funds for Building Construction

This form must be completed for each building phase of those buildings completed after June 30, 1964, though the institution may report this information for any or all prior buildings if it so desires.

Institution Number (card columns 1-5), Abbreviated Building Name (card columns 6-11), Building Number (card columns 12-15), and Building Phase (card column 16) should be recorded in the same manner as in Form A-2.

Enter the amount of funds (in thousands) along with the source code as indicated on the A-3 coding form. A separate entry should be made for each type of funding, the amounts should be totaled, and the total entered in card columns 73-77. Right justify all amounts and codes adding leading zeroes where necessary. The total shown on Form A-3 should include all items of "Total Project Cost" shown on Form A-5. A Card Type Code of 3 should be entered in card column 80 for each A-3 record.

Form A-4: Land Inventory

The purpose of this form is to obtain information in regard to all lands owned, leased, or otherwise available for institutional use. The total acreage reported should include all lands even though some may not be currently in use.

When an institution has several different campuses, Form A-4 should be completed for each campus.

Item 1 (Ownership of Land) is self-explanatory.

Item 2 (Location of Land) identifies all land holdings according to their proximity to the campus being reported. All land contiguous to this campus should be reported, even though some land may not be currently in use. Land not contiguous to this campus but located within a one-mile radius should be reported in Item 2-b. Include all

lands contiguous to that location within the one-mile radius even though they may extend beyond the one-mile limit. The total acreage reported in Item 2 should be the same as the total of Item 1.

Item 3 (Condition of Land) differentiates between that land which is improved and unimproved. Improved acreage includes that which has been developed into campus grounds and facilities. Unimproved acreage includes that which is still in the form of raw land or farm land. The total acreage reported in Item 3 should be the same as the totals of Item 1 and Item 2.

Item 4 (Estimated Value of Adjacent Land) should include a general estimate of the cost to acquire additional land which lies adjacent to the campus. If land is unavailable because of commercial development or other reasons, indicate "not applicable" in the appropriate blank.

This form is not arranged for computer processing and should therefore always be reported on the paper form.

Form A-5: Detailed Project Cost

This form must be completed for each building phase of buildings completed since June 30, 1964. The institution may report this information for any or all buildings completed prior to that date if it so desires.

Items 1-12 of this form seem self-explanatory as listed on Form A-5. We would only emphasize that all items of the detailed project cost are to be reported in thousands of dollars. This means that an entry of $652,000 would be entered as 00652. Please note that the total of items 1-6 on Form A-5 should be the same as the total construction cost reported on the A-2 form (card columns 50-54) and that the total for this form, items 1-12, should be the same as the total reported on Form A-3 (card columns 73-77).

While Form A-5 is designed for easy keypunching, we have not yet incorporated it into our computerized processing system, and therefore all institutions should report this data on the paper form until further notice.

DKP:9-21-70

DETAILED DEFINITIONS OF SPACE CLASSIFICATION CODES

Following are detailed explanations of kinds of space to be included under each of the functional use, room type, and subject field and organizational unit codes:

FUNCTIONAL USE CODES

10 Instruction.--Classrooms, teaching laboratories, faculty offices, offices for clerical and teaching assistants for faculty, offices for academic deans and heads of departments, and other rooms used in the resident instructional program of the institution.

15 Organized Activities Related to Instruction.--Laboratory schools, farms, creameries, and other facilities designed to provide professional training opportunities for students.

20 Research.--Rooms used by research bureau, experiment stations, and other departments of the institution in which research activities are carried on, whether funded from institutional funds or outside sources.

30 Extension and Public Service.--Extension division, radio and television stations and museums (if assigned to serve the general public), and other similar facilities.

40 Libraries.--Rooms used for the collection, storage, and circulation of books, periodicals, manuscripts, and other reading and reference materials as well as offices and office service rooms used by librarians.

50 Administration and General.--General executive and administrative offices, secretarial and clerical space of administrative personnel, student services, admissions and registration, placement, public relations, institutional publications, business offices, etc.

55 Physical Plant Operation and Maintenance.--Maintenance shops, machine shops; motor pools; heating plants; police, fire protection, and security offices; and the like.

60 Auxiliary Enterprises.--Housing facilities, student unions, bookstores, post offices, dining halls and cafeterias, and other similar facilities designed to be self-supporting.

70 Non-Institutional Agencies.--State, regional, and federal offices; offices used by professional organizations and agencies; and other rooms owned by the institution but used by non-institutional agencies or groups.

80 Unassigned Areas.--Areas which are unassigned at the time of the inventory because of present condition (inactive, unfinished, or undergoing alteration or conversion).

00 Non-Assignable Areas.--Areas which are non-assignable due to their particular type (custodial, mechanical, public toilet, or circulation space).

ROOM TYPE CODES

110 Classroom.--A room used by classes which do not require special-purpose equipment for student use. Included in this category are rooms generally referred to as lecture rooms, seminar rooms, lecture-demonstration rooms, and general purpose classrooms.

115 Classroom Service.--A room which directly serves a classroom as an extension of the activities of the classroom. In this category are such rooms as projection rooms, cloak rooms, closets, and storage if they serve a classroom.

210 Class Laboratory.--A room used by regularly scheduled classes which require special-purpose equipment for student participation, experimentation, observation, or practice in a field of study.

215 Class Laboratory Service.--A room which directly serves a class laboratory as an extension of the activities of the laboratory.

220 Special Class Laboratory.--A room used by informally (or irregularly) scheduled classes which require special-purpose equipment for student participation, experimentation, observation, or practice in a field of study. Typically this category includes such rooms as language laboratories, group music practice rooms, group studios, etc.

225 Special Class Laboratory Service.--A room which directly serves a special class laboratory as an extension of the activities in such a facility.

230 Individual Study Laboratory.--A room especially equipped and/or designed for individual student experimentation, observation, or practice in a particular field of study. Included are individual music practice rooms, individual study laboratories, and the like.

235 Individual Study Laboratory Service.--A room which directly serves an individual study laboratory as an extension of the activities in such a facility.

250 Non-Class Laboratory.--A room used for laboratory applications, research, and/or training in research methodology which requires special-purpose equipment for staff and/or student experimentation or observation.

255 Non-Class Laboratory Service.--A room which directly serves a non-class laboratory as an extension of the activities of that room.

310 Administrative Offices.--Rooms with office-type equipment used by administrative personnel such as the president, business manager, dean of students, academic deans, and the like.

311 Faculty Offices.--Rooms with office-type equipment used by the teaching and/or research faculty.

312 Other Professional Offices.--Rooms with office-type equipment used by professional personnel other than the administrative staff and faculty. Also includes technical offices, etc.

313 Assistant Offices.--Rooms with office-type equipment designed for use by a semi-professional staff member such as a teaching assistant, graduate assistant, administrative assistant, research assistant, and the like. Also includes student organization offices, etc.

314 Secretarial and Clerical Offices.--Rooms designed or intended for use by secretarial or clerical personnel. If secretarial offices also serve as "office service" as defined in the next paragraph, the rooms should be coded according to the primary use of the rooms.

320 Office Service.--A room used in conjunction with an office, such as a waiting room, office file and supply room, interconnecting corridor within a suite of offices, private toilet, clothes closet, and the like.

350 Conference Room.--A room used by non-class groups for meetings.

355 Conference Room Service.--A room which directly serves a conference room as an extension of the activities of the conference room.

410 Study Room (Non-Dormitory).--A room used to study books or audio-visual materials on an individual basis. Included in this category are library reading rooms, carrels, study rooms, individual study stations, study booths, and similar rooms intended for general study purposes. Does not include special class laboratories, offices, combined sleeping-study rooms in residence halls, waiting rooms, or lounges.

420 Stack.--A room used to provide shelving for books or audio-visual materials used by staff and/or students on an individual basis. Included are rooms generally referred to as library stacks.

430 Open-Stack Reading Room.--A room which is a combination of study room and stack, generally without physical boundaries between the stack area and the study area.

440 Library Processing Room.--A room which serves a study room, stack, or open-stack reading room as a supporting service to such rooms. Included in this category are rooms used to house the card catalog, circulation desk, bookbinding, microfilm processing, and audio-visual record-playback equipment for distribution to individual study stations.

455 Study Facilities Service.--A room which directly serves a study room, stack, open-stack reading room, or library processing room as a direct extension of the activities in such rooms. Included would be closets, locker space, coatrooms, etc.

510 Armory Facilities.--A room (or area) used by ROTC units as an indoor drill area, rifle range, or special-purpose military science room. This does not include rooms designated as classrooms, class laboratories, or offices.

515 Armory Facilities Service.--A room which directly serves an armory facility as an extension of the activities of such a facility.

520 Athletic-Physical Education Facilities.--A room (or indoor area) used by students, staff, or the public for athletic activities. Included in this category are gymnasiums, basketball courts, handball courts, squash courts, wrestling rooms, swimming pools, ice rinks, indoor tracks, etc.

523 Athletic Facilities Spectator Seating.--The seating area used by students, staff, or the public to watch athletic events.

525 Athletic-Physical Education Facilities Service.--A room which directly serves an athletic-physical education facility as an extension of the activities in such a facility.

530 Audio-Visual, Radio, TV Facilities.--A room or group of rooms used in the production and/or distribution of instructional media. This category includes TV studios, radio studios, sound studios, and graphics studios.

535 Audio-Visual, Radio, TV Facilities Service.--A room which directly serves as an extension of the activities in an audio-visual, radio, or TV facility.

540 Clinic Facilities (Non-Medical).--A room used for the diagnosis and/or treatment of patients in a program other than medicine, dentistry, and student health care. Included in this category are examination rooms, testing rooms, and consultation rooms which are typically associated with such areas as psychology, speech and hearing, remedial reading, and remedial writing.

545 Clinic Facilities Service (Non-Medical).--A room which directly serves a clinic as an extension of its activities.

550 Demonstration Facilities.--A room used to practice the principles of certain subject-matter areas, particularly teaching and home management. This

category includes demonstration schools, laboratory schools, pre-school nurseries, home management houses, etc.

555 Demonstration Facilities Service.--A room which directly serves as an extension of the activities of a demonstration facility.

560 Field Service Facilities.--A barn or similar structure for animal shelter or the handling, storage, and/or protection of farm products, supplies, and tools.

590 Other Special-Use Facilities.--A category for special-use facilities which are not classifiable in one of the defined categories.

595 Other Special-Use Facilities Service.--A room which directly serves as an extension of the activities of a facility which falls in the preceding category.

610 Assembly Facilities.--A room designed and equipped for dramatic, musical, devotional, or livestock judging activities. This category includes theatres, auditoriums, concert halls, arenas, chapels, and judging pavilions.

615 Assembly Facilities Service.--A room which directly serves an assembly facility as an extension of its activities.

620 Exhibition Facilities.--A room used for exhibits. This category includes museums, art galleries, and similar exhibition areas.

625 Exhibition Facilities Service.--A room which directly serves an exhibition facility as an extension of its activities.

630 Food Facilities.--A room used for eating food. This category includes dining halls, cafeterias, snack bars, restaurants, and similar eating places which are open to the student body and/or public at large. Dining halls in residence halls should be classified under "Residential Facilities."

635 Food Facilities Service.--A room which directly serves a food facility as an extension of its activities, including such areas as kitchens, refrigeration rooms, freezers, dishwashing rooms, cafeteria serving areas, and other non-dining areas.

640 Health Facilities (Student).--A room used for the medical examination or treatment of students. This category includes examination rooms, bedrooms, surgery rooms, clinics, etc.

645 Health Facilities Service (Student).--A room which directly serves a health facility, such as a dispensary, record room, waiting room, clinical laboratory, scrub-up rooms, linen closet, etc.

650 Lounge Facilities (Non-Dormitory).--A room used for rest and relaxation, except in a dormitory.

655 Lounge Facilities Service (Non-Dormitory).--A room which directly serves a lounge, such as a kitchenette.

660 Merchandising Facilities.--A room (or group of rooms) used to sell products or services. This category includes bookstores, barber shops, post offices, dairy stores, student union "desks," and motel-hotel rooms.

665 Merchandising Facilities Service.--A room which directly serves as an extension of the activities of a merchandising facility.

670 Recreation Facilities (Non-Dormitory).--A room used for recreation purposes such as a bowling alley, pool and billiard room, ping pong room, ballroom, game room, and hobby room; not including, however, athletic-physical education facilities used for purposes of instruction or intercollegiate athletics.

675 Recreation Facilities Service (Non-Dormitory).--A room which directly serves a recreation facility as an extension of its activities. This category includes storage closets, equipment issue rooms, cashiers' desks, and similar areas.

690 Other General-Use Facilities.--A category for general-use facilities which do not fall into one of the defined categories.

695 Other General-Use Facilities Service.--A room which directly serves as an extension of the activities of a facility which falls in the preceding category.

710 Data Processing-Computer Facilities.--A room (or group of rooms) for institution-wide processing of data by machines or computers. A facility used for a combination of purposes including instruction, research, and administrative data processing should be included in this category. A facility used primarily for teaching should be classified as a laboratory.

715 Data Processing-Computer Facilities Service.--A room which directly serves a data processing-computer facility as an extension of its activities. This category includes storage areas, wiring rooms, equipment repair rooms, observation rooms, etc.

720 Shop Facilities.--A room used for the manufacture or maintenance of products and equipment. This category includes such rooms as carpenter shops, plumbing shops, electrical shops, painting shops, and similar physical plant maintenance facilities. It also includes central printing and duplicating shops.

725 Shop Facilities Service.--A room which directly serves a shop as an extension of the activities in such a room. This category includes such facilities as tool storage rooms, materials storage rooms, and the like.

730 Storage Facilities.--A room used to store materials. This category is limited by definition to a central storage facility and inactive departmental storage. Storage related to other types of space would follow classification of that type of space with a "service" designation.

735 Storage Facilities Service.--A room which directly serves a storage facility.

740 Vehicle Storage.--A room (or structure) used to store vehicles. "Vehicles" is broadly defined to include boats and aircraft.

745 Vehicle Storage Service.--A room (or structure) used to service vehicles.

790 Other Supporting Facilities.--A category for supporting facilities which do not fall into one of the defined categories.

795 Other Supporting Facilities Service.--A room which serves directly as an extension of the activities of a facility which falls in the preceding category.

810 Human Hospital-Clinic Facilities.--Rooms used for the medical examination and/or treatment of humans as in-patients or out-patients.

815 Human Hospital-Clinic Facilities Service.--Rooms which serve a human hospital-clinic facility as a direct extension of the activities in such rooms.

820 Human Hospital-Patient Care Facilities.--Rooms which provide beds for patients in a hospital.

825 Human Hospital-Patient Care Facilities Service.--Rooms which serve a patient care facility as a direct extension of the activities in such a room.

840 Dental Clinic Facilities.--Rooms used for the dental examination and/or treatment of humans.

845 Dental Clinic Facilities Service.--Rooms which serve a dental clinic as a direct extension of the activities in such rooms.

850 Veterinary Hospital-Clinic Facilities.--Rooms used for the medical examination and/or treatment of animals as in-patients or out-patients.

855 Veterinary Hospital-Clinic Facilities Service.--Rooms which serve a clinic facility as a direct extension of the activities in such a facility.

860 Veterinary Hospital-Animal Care Facilities.--Rooms which provide a cage or stall for animal patients.

865 Veterinary Hospital-Animal Care Facilities Service.--Rooms which serve an animal care facility as a direct extension of the activities in such a room.

910 Dormitory Bedrooms.--Self-explanatory.

911 Dormitory Service.--Dormitory bathrooms, study areas, lounges, recreation areas, counselor quarters, and laundries.

915 Single Student Apartments.--A duplex house or apartment building used for housing single students.

916 Single Student Apartment Service.--Lounges, recreation areas, laundries, and similar facilities located in single student apartment buildings for common use of students housed in the apartment buildings. NOTE: If apartments and dormitory bedrooms are included in the same building, categorize all services under 911 above unless the services are for the exclusive use of the apartment residents only.

918 Dormitory Food Facilities.--Dining halls in dormitory facilities used for feeding of students.

919 Dormitory Food Facilities Service.--Rooms which directly serve food facilities as an extension of the activities in such facilities.

920 One-Family Dwelling.--A house provided for one family.

930 Multiple-Family Dwelling.--A duplex house or apartment building for more than one family.

940 Central Food Store.--A central facility for the processing and storage of foods used in residence facilities and food facilities.

950 Central Laundry.--A central facility for washing, drying, and ironing of linens, uniforms, and other institutional material.

010 Custodial Area.--Rooms commonly referred to as "janitor closets," and the like.

020 Circulation Area.--An area which is required for physical access to some subdivisions of space. This category includes corridors, elevator shafts, escalators, fire towers or stairs, stairs and stair halls, lobbies, and tunnels.

030 Mechanical Area.--An area designed to house mechanical equipment and utility services. This category includes boiler rooms, fixed mechanical and electrical equipment rooms, fuel rooms, meter and communications closets, and service chutes.

035 Public Toilets.--A non-private toilet for either custodial or public use.

081 Inactive Area.--A room which is not in present use.

082 Alteration or Conversion Area.--A room which is undergoing alteration or a conversion process.

083 Unfinished Area.--A room which is in the process of being constructed.

SUBJECT FIELD AND ORGANIZATIONAL UNIT CODES

SUBJECT FIELD CODES

These codes which range from 1110 to 1820 should be used only for space categorized under the following functional use codes: Instruction (code 10), organized activities (code 15), research (code 20), and extension and public service (code 30). Space categorized under other functional uses should be assigned the appropriate organizational unit code from the list which follows the definitions of the subject field codes. Each space must be assigned an appropriate code from one of these two lists.

1110 General.--Identifiable but broader than any one category; i.e., Office of the Dean of Arts and Sciences. This category should include all classrooms available for general use within the institution. Classrooms assigned to a particular department should be identified by subject field.

1120 Unclassified.--Not identifiable. A room or area associated with general curricula, with students with no declared major, or with no subject field area.

1210 Biological Science.--This category includes the following subject matter areas: pre-medical, pre-dental, pre-veterinary, biology, zoology, anatomy, histology, bacteriology, microbiology, biochemistry, biophysics, cytology, ecology, embryology, entomology, nutrition, pathology, pharmacology, physiology, plant pathology, plant physiology, other biological sciences.

1220 Agricultural Science.--This category includes the following subject matter areas: general agriculture, field agronomy, agricultural business, animal science, dairy science, farm management, wildlife management, food science, horticulture, international agriculture, ornamental horticulture, poultry science, soil science, other agriculture.

1225 Forestry.--Self-explanatory.

1231 Medicine.--Self-explanatory.

1232 Veterinary Medicine.--Self-explanatory.

1233 Dentistry.--Self-explanatory.

1234 Nursing.--Self-explanatory.

1235 Pharmacy.--Self-explanatory.

1236 Public Health.--Self-explanatory.

1238 Other Health Professions.--This category includes the following subject matter areas: chiropody-podiatry, dental hygiene, medical technology, occupational therapy, optometry, osteopathy, physical therapy, radiologic technology, clinical dental sciences, clinical medical sciences, clinic veterinary medical sciences, other health professions.

1239 General Health Professions.--Self-explanatory.

1299 General Life Sciences.--Self-explanatory.

1310 Mathematical Sciences.--This category includes the subject matter areas of mathematics and statistics.

1320 Computer Sciences.--This category includes the subject matter areas of data processing, computer science, systems analysis, and other subjects associated with this general field.

1330 Physical Sciences.--This category includes the following subject matter areas: general physical sciences, astronomy, chemistry, metallurgy, meteorology, pharmaceutical chemistry, physics, geology, geophysics, oceanography, other earth sciences, other physical sciences.

1340 Engineering Sciences.--This category includes the following engineering subject matter areas: aerospace, agriculture, architectural, biomedical, chemical civil, electrical, nuclear, thermal, engineering sciences, sanitary and environmental health, general, geological, industrial, mechanical, metals and ceramic, mining, naval architecture and marine, petroleum, other engineering.

1399 General Mathematical, Computer, Physical, or Engineering Sciences.--Self-explanatory.

1410 Psychology.--This category includes the following subject matter areas: general psychology, clinical psychology, counseling, social psychology, rehabilitation counselor training, educational psychology, other psychology.

1420 Social Sciences.--This category includes the following subject matter areas: general sociology, American civilization, anthropology, area studies, economics, history, international relations, political science, sociology, basic social science, agricultural economics, foreign service, industrial relations, public administration, social work, other applied social sciences, other social science.

1425 Geography.--Self-explanatory.

1499 General Social Sciences.--Self-explanatory.

1510 Fine and Applied Arts.--This category includes general art, music, speech and dramatic arts, and fine and applied arts.

1520 English and Journalism.--This category includes the subject matter areas of English (including English literature) and journalism which are commonly associated with liberal arts.

1530 Foreign Language and Literature.--This category includes linguistics and foreign languages and literature.

1540 Philosophy.--Self-explanatory.

1550 Religion.--This category includes Bible education and other religious subject matter areas commonly included in general education programs of colleges and universities.

1599 General Humanities.--Self-explanatory.

1610 Business Administration.--This category includes the subject matter areas of general business, accounting, hotel and restaurant administration, secretarial, and other business subjects.

1615 Hospital Administration.--Self-explanatory.

1619 Other Administration.--Self-explanatory.

1620 Education.--This category includes the following subject matter areas: exceptional children; partially sighted; blind; mentally retarded; emotionally disturbed; deaf; speech and hearing; criopled; agricultural education; art education; business education; distributive education; home economics education; non-vocational industrial arts; music education; industrial education; nursery and kindergarten; early childhood; elementary; secondary; combined elementary and secondary; adult education; administration, supervision, finance; counseling and guidance; history, philosophy, comparative; curriculum and instruction; general education; other education.

1630 Architecture.--Self-explanatory.

1635 Urban and Regional Planning.--Self-explanatory.

1640 Home Economics.--This category includes the following subject matter areas: general home economics, child development, family relations, clothing and textiles, foods and nutrition, institutional management, other home economics.

1650 Law.--Self-explanatory.

1660 Social Work.--Self-explanatory.

1670 Theology.--Self-explanatory.

1690 Professional Journalism.--This category includes the subject matter area of journalism at the professional or occupational level and commonly associated with a department or school of journalism.

1695 Library Science.--Self-explanatory.

1698 Other Professions.--Self-explanatory.

1699 General Professions.--Self-explanatory.

1705 Agricultural Technologies.--Self-explanatory.*

1710 Apparel Design or Fabrication Technologies.--Self-explanatory.*

1715 Business Technologies.--Self-explanatory.*

1720 Construction Technologies.--Self-explanatory.*

1725 Engineering and Industrial Technologies.--Self-explanatory.*

1730 Graphic Arts Technologies.--Self-explanatory.*

1735 Health Technologies.--Self-explanatory.*

1750 Public Service Technologies.--Self-explanatory.*

1760 Transportation Technologies.--Self-explanatory.*

1790 Other Technologies.--Self-explanatory.*

1799 General Technologies.--Self-explanatory.*

1810 Physical Training.--This category includes health and recreation education, physical education, and intramural athletic programs administered by the physical-education department.

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*These subject fields are associated with a program, or course within a program, designed to prepare students for immediate employment in an occupation or cluster of occupations, and not as the equivalent of the first two or three years of a baccalaureate degree program.

1820 Military Science.--This category includes Air and Aerospace ROTC, Army ROTC, Navy ROTC, and the equivalent.

ORGANIZATIONAL UNIT CODES

5000 Library Organizational Units (Functional Use Code 40).--The institution may develop more detailed "subject field" codes for this organizational function so long as they are numeric codes between 5000 and 5999. Where this is not done 5000 should be used for all space in this category.

6000 Administration and General Organizational Units (Functional Use Code 50).--The institution may develop more detailed "subject field" codes for this organizational function so long as they are numeric codes between 6000 and 6499. Where this is not done 6000 should be used for all space in this category.

6500 Physical Plant Operation and Maintenance (Functional Use Code 55).--The institution may develop more detailed "subject field" codes for this organizational function so long as they are numeric codes between 6500 and 6999. Where this is not done 6500 should be used for all space in this category.

7000 Auxiliary Enterprise Organizational Units (Functional Use Code 60).--The institution may develop more detailed "subject field" codes for this organizational function so long as they are numeric codes between 7000 and 7999. Where this is not done 7000 should be used for all space in this category.

8000 Non-Institutional Agency Organizational Units (Functional Use Code 70).--The institution may develop more detailed "subject field" codes for this organizational function so long as they are numeric codes between 8000 and 8999. Where this is not done 8000 should be used for all space in this category.

9000 Unassigned Areas (Functional Use Code 80).--All space in this category should be given the "subject field" code 9000.

0000 Non-Assignable Areas (Functional Use Code 00).--All space in this category should be given the "subject field" code 0000.

CCHE:DKP:9-15-70

COLORADO COMMISSION ON HIGHER EDUCATION
Denver, Colorado

Form A-1
Room Inventory
Card No. 1 (Col. 80-1)
ULCC

Institution Number ___ ___ ___ ___ ___ (1 2 3 4 5)

Building Name (Abbrev.) ___ ___ ___ ___ ___ ___ (6 7 8 9 10 11)

Building Number ___ ___ ___ ___ (12 13 14 15)

Phase ___ (16)

Institution Name _____

Completed By _____

Date _____

| Room Number | | | | | | | Func. Use Code | | Room Type Code | | | | | Subject Field Code | | | | | | | Square Feet | | | | | Actual Stations* | | | | | (Optional) Computed Stations* | | | | | | |

COLORADO COMMISSION ON HIGHER EDUCATION
Denver, Colorado

Institution Name _____

Completed By _____

Date _____

Form A-2 Building Inventory
Revised 7/71
Replaces all previous A-2 forms

Institution Number 1 2 3 4 5

Building Name (Abbreviate if necessary) 6 7 8 9 10 11

Building Number and Building Phase . . 12 13 14 15 Ph 16

I. General Characteristics (Complete for all buildings)

Number of Rooms (Include non-assignable areas. This figure must equal the number of A-1 records for this building phase.) 17 18 19 20

Total Room Area (Include non-assignable areas. This figure must equal the total square footage of all the A-1 records for this building phase) 21 22 23 24 25 26

Total Outside Gross Square Feet 27 28 29 30 31 32

Construction Completion Year for This Phase 1 33 34 35

Ownership Code: (Insert the most appropriate code from the following: (1) Owned; (2) Leased or Rented; (3) Available at No Cost or Nominal Rate; (4) Lease--Purchase Arrangement; . . (5) Shared--Other Than College Level--Owned; (6) Shared--Other Than College Level--Not Owned; (7) Shared--College Level--Owned; (8) Shared--College Level--Not Owned.) 36

General Building Type: (Insert the most appropriate code from the following: (10) Classroom or Classroom/Office; (11) Science; (12) Engineering; (13) Fine Arts; (14) Instructional Shop; . . (15) Physical Education; (16) Office; (17) Library; (20) Chapel; (29) Other Academic Facility; (30) Physical Plant Service; (31) Farm Building; (40) Student Center; (41) Hospital or Infirmary; (50) Dormitory; (51) Apartment Building; (52) Single Family Dwelling or Duplex; (60) Other Auxiliary Enterprise Facility.) 37 38

Air-Conditioning of Building: (Insert the most appropriate code from the following: (1) Central Air Conditioning; (2) Partial Central Air Conditioning; (3) Not Air Conditioned.) 39

Building Levels:
Number of Building Levels Below Grade 40

Number of Building Levels at Grade Level or Above 41 42

II. Building Evaluation (Complete for all buildings)

General Building Quality: (Insert the most appropriate code from the following: (1) Excellent; (2) Satisfactory; (3) Poor; (4) Unsatisfactory) 43

Obsolescence: (Insert the most appropriate code from the following: (0) Currently Adequate; (1) 25% Obsolete; (2) 50% Obsolete; (3) 75% Obsolete; (4) 100% Obsolete.)
Functional Obsolescence 44

Structural Obsolescence 45

Economic Obsolescence 46

III. Uniform Building Code Information (Optional)

Occupancy: (Insert code A through J) 47

Type of Construction: (Insert code 1 through 5) 48

IV. Future Use of Building (Complete for all buildings. Insert the most appropriate code from the following: (1) Continue Use Indefinitely with Ordinary Maintenance/Minor Alterations; (2) Continue Use Indefinitely with Major Maintenance/Major Alterations; (3) Discontinue Use After Five Years; (4) Discontinue Use Within Five Years.) 49

V. Total Construction Cost (Complete for only those buildings constructed after June 30, 1964, unless institution desires to complete for all buildings. Show cost in thousands of dollars. Include all costs identified in items 1 through 6 on Form A-5.) 50 51 52 53 54

VI. Housing (Complete for housing units only)

Type of Housing: (Insert the most appropriate code from the following: (1) Single Student; (2) Married Student; (3) Faculty or Staff; (4) Guest.) 55

Design Capacity (Single student housing only) 56 57 58 59

VII. Card Type Code 2 60

D4-26

COLORADO COMMISSION ON HIGHER EDUCATION
Denver, Colorado

Form A-3
Source of Funds for
Building Construction
Card No. 3 (Col. 80-3)
URCC

(Complete this form for only those buildings completed after June 30, 1964, unless institution desires to complete for all buildings.)

Institution Number ___ ___ ___ ___ ___ (1 2 3 4 5)

Building Name (Abbrev.) ___ ___ ___ ___ ___ ___ (6 7 8 9 10 11)

Building Number ___ ___ ___ ___ (12 13 14 15)

Building Phase ___ (16)

Institution Name _____

Completed By _____

Date _____

Source of Funds: (In thousands)

Source Code	Amount	Source Code	Amount
17 18	19 20 21 22 23	45 46	47 48 49 50 51
24 25	26 27 28 29 30	52 53	54 55 56 57 58
31 32	33 34 35 36 37	59 60	61 62 63 64 65
38 39	40 41 42 43 44	66 67	68 69 70 71 72
		Total	73 74 75 76 77

Source Codes

	Code	
Governmental Appropriations	01	State Government
	02	Local Government
	03	Title I HEFA, P.L. 88-204
Federal Government Grants	04	Title II HEFA, P.L. 88-204
	05	Public Health Service
	06	National Science Foundation
	07	Other: Specify
Direct Tax Levy	08	State Government
	09	Local Government
	10	State Government
General Obligation Bonds	11	State Authority
	12	Local Government
	13	Institutional
	14	Title III HEFA Loans Under P.L. 88-204
Revenue Bonds	15	College Housing Loan Program (HHFA)
	16	Other Than From HHFA
Other	17	Pledged Student Building Fees
	18	Gifts and Grants
	19	Current Funds
	20	Investment of or Borrowed from Endowment Funds
	21	Investment of or Borrowed from Other College Funds
	22	Borrowed from Private or Commercial Sources Outside the Institution
	23	Source Unknown
	24	Other: Specify

COLORADO COMMISSION ON HIGHER EDUCATION
Denver, Colorado

Form A-5
Detailed Project Cost
Card No. 4 (Col. 80-4)
URCC

(Complete this form for only those buildings completed after June 30, 1964, unless institution desires to complete for all buildings.)

Institution Number ___ ___ ___ ___ ___ (1 2 3 4 5)

Building Name (Abbrev.) ___ ___ ___ ___ ___ ___ (6 7 8 9 10 11)

Building Number ___ ___ ___ ___ (12 13 14 15)

Building Phase ___ (16)

Institution Name _____

Completed By _____

Date _____

Detailed Project Cost (In thousands of dollars):

1. Structure	(17 18 19 20 21)	
2. Built-In Equipment	(22 23 24 25 26)	
Total Cost of Structure and Built-In Equipment		___ ___ ___ ___ ___
3. Architectural and Engineering	(27 28 29 30 31)	
4. Surveys and Site Investigation	(32 33 34 35 36)	
5. Construction Supervision	(37 38 39 40 41)	
6. Contingencies	(42 43 44 45 46)	___ ___ ___ ___ ___
Total Cost of Construction (Items 1 through 6)		___ ___ ___ ___ ___
7. Program Planning	(47 48 49 50 51)	
8. Site Work	(52 53 54 55 56)	
9. Landscaping	(57 58 59 60 61)	
10. Utilities (from supply to 5 feet from Bldg.)	(62 63 64 65 66)	
11. Movable Equipment	(67 68 69 70 71)	
12. Land	(72 73 74 75 76)	___ ___ ___ ___ ___
Total Project Cost (Items 1 through 12)		___ ___ ___ ___ ___